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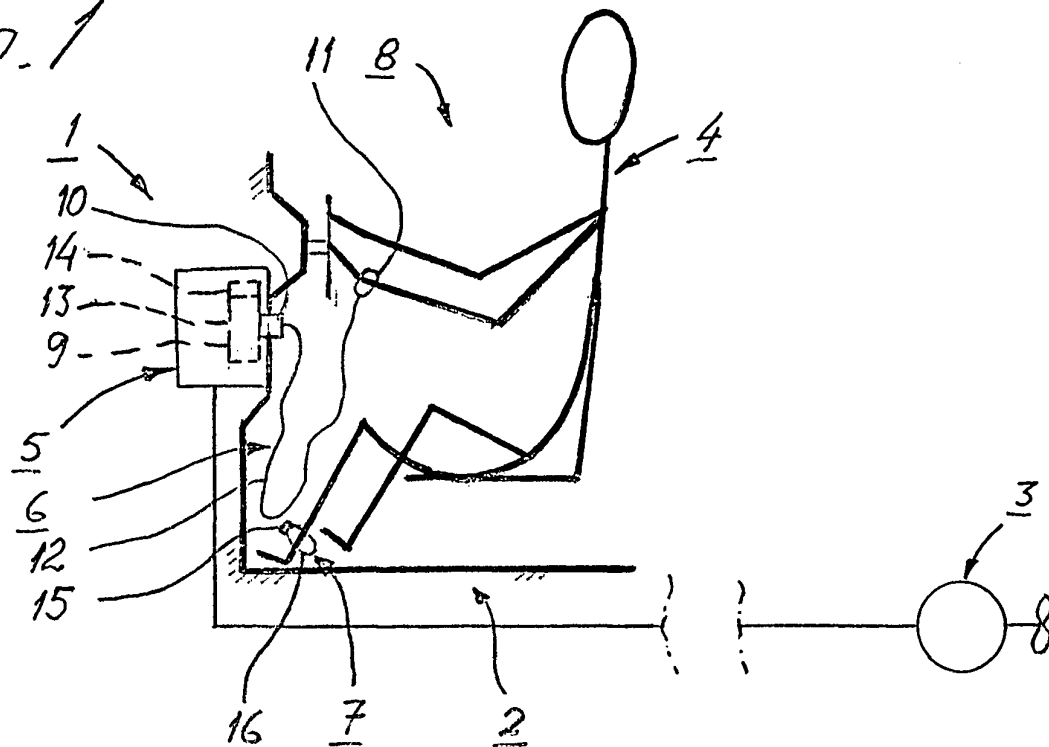
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AL HR LT LV MK(71) Applicant: **EGA Försäljnings AB****313 32 Oskarström (SE)**(72) Inventor: **Larsson, Henrik****302 36 Halmstad (SE)**(74) Representative: **Wagner, Karl Heinz****H. Wagner & Co. AB****Norra Vallgatan 72****211 22 Malmö (SE)**(54) **Safety system for user of a motor boat**

(57) The present invention relates to a safety system for motor boats, preferably smaller motor boats, at which the motor boat engine (3) cooperates with an ignition system (5).

A first safety device (6) is provided to establish a physical connection between the driver (4) of the motor boat and the ignition system (5) which is broken or interrupted if the driver falls overboard in order to bring the ignition

system (5) to break the operation of the motor boat engine (3). A second safety device (7) is provided to cooperate, through wireless communication between the driver (4) and the ignition system (5), with said ignition system (5) for bringing it to break the operation of the motor boat engine (3) if the driver (4) falls overboard. The second safety device (7) is provided to be activated irrespective of whether the first safety device (6) is activated or not.

Fig. 1**EP 1 640 935 A1**

Description

[0001] The present invention relates to a safety system for motor boats, preferably smaller motor boats, at which the motor boat engine cooperates with an ignition system.

[0002] There are several different types of safety systems in order to ensure that motor boats stop if the driver of the boat falls overboard. Such a prior art system is known as "dead man's handle" and is primarily intended for smaller boats. It is principally made up of a physical connection in the form of a string with associated members between the driver of the boat and the ignition system of the engine. If the driver falls overboard, the string is torn away from its connection with the ignition system such that the motor boat engine stops. Such a safety system is simple and inexpensive, but has a substantial drawback since it can be used only when the driver is at the driver's stand.

[0003] Other prior art safety systems are described in US patent specifications 4 549 169 and 6 057 759 and relate to radio communication.

[0004] None of the prior art safety systems provides double safety by simple means nor a way to choose one of several systems at a time.

[0005] The object of the present invention has therefore been to remedy said shortages by simple means and this is accomplished by providing the safety system with the characterizing features of primarily subsequent claim 1.

[0006] Since the safety system is provided with said characterizing features, double safety can be obtained if desired and one of several safety systems can be used if desired. Thus, one can use a first as well as a second safety system if one intends to drive the boat from one point to another without moving from the driver's stand, and use the second safety system only if one wants to move from the driver's stand for temporarily carrying through some work onboard the boat.

[0007] The invention will be further described with reference to the accompanying drawings, in which

fig. 1 with a side view schematically illustrates a safety system according to the invention;

figs. 2 and 3 schematically illustrate safety devices forming part of the safety system of fig. 1, connected in series in an ignition system for the motor boat engine and with disconnecting or opening properties, in different setting positions;

figs. 4 and 5 illustrate the safety devices according to figs. 2 and 3 with an additional resetting device in different setting positions;

figs. 6-9 schematically illustrate alternative safety devices forming part of the safety system of fig. 1, connected in series in the ignition system and with

connecting or closing properties, in various set positions;

figs. 10-13 schematically illustrate alternative safety devices forming part of the safety system of fig. 1, connected in parallel in the ignition system and with disconnecting properties, in various set positions;

figs. 14 and 15 schematically illustrate alternative safety devices forming part of the safety system, connected in parallel in the ignition system, in different set positions; and

figs. 16 and 17 illustrate the safety devices of figs. 14 and 15 with an additional resetting device in different set positions.

[0008] The safety system 1 illustrated in the drawings is adapted for use in motor boats 2, preferably smaller motor boats, for breaking the operation of the motor boat engine 3 if the driver 4 falls overboard. For this purpose, the safety system 1 cooperates with the ignition system 5 of the motor boat engine 3, said ignition system 5 being brought to break the operation of the motor boat engine 3.

[0009] The safety system 1 comprises a first safety device 6 and a second safety device 7.

[0010] The first safety device 6 is provided to establish, in activated condition, a physical connection between the driver 4 of the motor boat 2 and the ignition system 5 and this connection is broken or interrupted if the driver 4 falls overboard, whereby the ignition system 5 is brought to break the operation of the motor boat engine 3.

[0011] The second safety device 7 is provided to cooperate, in activated condition and through wireless communication between the driver 4 and the ignition system 5, with said ignition system 5 for bringing it to break the operation of the motor boat engine 3 if the driver 4 falls overboard.

[0012] The second safety device 7 is provided to be activated irrespective of whether the first safety device 6 is activated or not. By means of this device, the driver 4 is able to use the safety system 1 in the following manner:

a) the driver 4 can use the first as well as the second safety device 6, 7 simultaneously when he or she is at the driver's stand 8, for double safety;

b) the driver 4 can disconnect from the first safety device 6 or disconnect the first safety device 6 while the second safety device 7 is activated, whereby the driver 4 can leave the driver's stand 8 of the motor boat 2 and move around on board the boat with the safety provided by the second safety device 7 - in this situation the driver 4 can reconnect or reconnect himself or herself to the first safety device 6 when he or she returns to the driver's stand 8.

[0013] The second safety device 7 can preferably be

mounted as an additional safety device in motor boats 2 which are already equipped with the first safety device 6. An advantage thereby is that one can maintain the advantageous functions of the first safety device 6 and when necessary replace the limited range of said first safety device 6 with the larger range of the second safety device 7.

[0014] The first safety device 6 is preferably of "dead man's handle"-type and comprises a first safety contact 9 mounted in the ignition system 5, a coupling member 10 which can be inserted manually in a recess therefor in the motor boat 2 such that said coupling member can cooperate with the first safety contact 9, a member 11 carried by the driver 4, e.g. a bracelet, and a connecting means 12, e.g. a string, which connects the coupling member 10 and the portable member 11 to each other. This first safety device 6 provides a physical connection between the driver 4 and the ignition system 5 and the length of the connecting means 12 is chosen such that the driver 4 can move freely in and at the driver's stand 8, but if the driver 4 falls overboard he or she brings the connecting means 12 with him or her such that the coupling member 10 is pulled out of its cooperation with the first safety contact 9, which in turn affects the ignition system 5 to break the operation of the motor boat engine 3 such that the motor boat 2 stops.

[0015] The second safety device 7 preferably comprises a second safety contact 13 which is mounted in the ignition system 5 and a control unit 14 which can cooperate with the second safety contact 13 for activation thereof such that it brings the ignition system 5 to break the operation of the motor boat engine 3. The second safety device 7 further comprises a unit 15 carried by the driver 4 of the boat and which can be fastened to the driver by e.g. being provided on a tape or strip 16 which the driver can thread onto the leg. The control unit 14 and the portable unit 15 carried by the driver 4 cooperate wirelessly with each other such that the control unit 14 is activated to cooperate with the second safety contact 13, which in turn cooperates with the ignition system 5 in order to bring said system to break or interrupt the operation of the motor boat engine 3 if the driver 4 falls overboard.

[0016] There are many wireless devices which can be used as said second safety device 7. An example thereof, is a device where the portable unit 15 is a signal sender, e.g. a radio signal sender, and the control unit 14 is a signal receiver, e.g. a radio signal receiver. When the signals from the signal sender are broken or interrupted by water in which the driver 4 lands if he or she falls overboard, the signal receiver is activated, which in turn activates the second safety contact 13 such that it brings the ignition system 5 to break the operation of the motor boat engine 3. The signal receiver may eventually also be activated when the driver 4 moves too far away from the signal sender.

[0017] Another example of a useful device for wireless communication is a device where the portable unit 15 is

a unit which can be sensed, by the control unit 14, which here is a sensor unit, in case the portable unit 15 passes the sensor unit 14. Said sensor unit may in such case be a logo extending around the motor boat 2 or parts thereof.

[0018] As is apparent from figs. 2-17, the first and second safety contacts 9, 13 can be mounted in a part of the ignition system 5 between an ignition lock 17 forming part thereof and the motor boat engine 3, and said first and second safety contacts 9, 13 can cooperate with the ignition system 5 such that they together or separately can affect said ignition system to break the operation of the motor boat engine 3.

[0019] Figs. 2-17 illustrate different ways to provide the first and second safety contacts 9, 13 of the first and second safety devices 6, 7 in order to obtain various functions.

[0020] In figs. 2-8, the ignition system 5 is shown with the first and second safety contacts 9, 13 connected in series relative to each other.

[0021] In figs. 2-5, the first and second safety contacts 9, 13 are illustrated having disconnecting functions, whereby fig. 2 shows said safety contacts in closing positions, meaning that the ignition system 5 is closed and the motor boat engine 3 can be started and in operation.

[0022] In fig. 3, a situation is shown where the driver 4 has fallen overboard and the second safety contact 13 has disconnected the ignition system 5 such that the motor boat engine 3 stops. The same result is reached if instead the first safety contact 9 or both safety contacts 9, 13 have disconnected the ignition system 5.

[0023] In fig. 4, an embodiment is shown, wherein a restart device 18 is provided for restarting the motor boat engine 3, e.g. for rescuing the driver 4 when he or she has fallen overboard and the second safety contact 13 has been disconnected. The restart device 18 preferably includes a by-pass 19 with a manually controlled contact 20 which is normally open (broken line) and which is closed (solid line) for reclosing the ignition system 5.

[0024] It is shown in fig. 5 that if the restart device 18 is closed and the motor boat engine 3 restarted, but the first safety contact 9 is disconnected because the driver 4 falls overboard, said safety contact brings the safety system 1 to break the operation of the motor boat engine 3.

[0025] Figs. 6 and 7 illustrate the first and second safety contacts 9, 13 with connecting or closing functions and in fig. 6 it is shown as an example that the first safety contact 9 is closed and the second safety contact 13 open, whereby the motor boat engine 3 can be started and operative.

[0026] Fig. 7 illustrates as an example that if the driver 4 falls overboard and the second safety contact 13 has closed, the engine 3 is brought to stop.

[0027] Fig. 8 illustrates as an example that if one after the situation according to fig. 7 activates the first safety contact 9, the ignition system 5 is disconnected thereby, whereby the motor boat engine 3 can be started and operated.

[0028] Fig. 9 illustrates as an example that if the driver 4 falls overboard and the first safety contact 9 thereby is closed, the motor boat engine 3 is brought to stop.

[0029] Figs. 10-17 illustrate embodiments where the first and second safety contacts 9, 13 are connected in parallel relative to each other in the ignition system 5.

[0030] At the embodiment according to figs. 10-13, the first and second safety contacts 9, 13 have disconnecting functions. Fig. 10 illustrates that if the first safety contact 9 is disconnected or open and the second safety contact 13 closed, the motor boat engine 3 can be started and operated. Fig. 11 shows that if the second safety contact 13 is disconnected because the driver 4 has fallen overboard, the motor boat engine 3 is brought to stop.

[0031] In fig. 12, it is shown that if the first and second safety contacts 9, 13 have been disconnected or opened (as is shown in fig. 11) and one closes the first safety contact 9, the motor boat engine 3 can be restarted.

[0032] In fig. 13 it is shown that if the driver 4 thereafter falls overboard and the first safety contact 9 is disconnected, the engine 3 is stopped.

[0033] In figs. 14-17, embodiments are shown wherein the first and second safety contacts 9, 13 have connecting or closing functions for breaking the operation of the motor boat engine 3.

[0034] In fig. 14 it is shown that if the first and second safety contacts 9, 13 are open or disconnected, the motor boat engine 3 can be started and operated. If e.g. the second safety contact 13 is closed, as is shown in fig. 15, because the driver 4 of the motor boat falls overboard, the motor boat engine 3 is brought to stop.

[0035] In figs. 16 and 17, a disconnecting device 21 is shown, permitting manual disconnection of the second safety contact 13 for restarting the motor boat engine 3 for e.g. being able to rescue a driver 4 when he or she has fallen overboard.

[0036] As is apparent from fig. 16, the motor boat engine 3 can be operated when the second safety contact 13 has been disconnected or opened by means of the disconnecting device 21, and as is apparent from fig. 17, the operation of the engine 3 can be stopped if the driver 4 falls overboard and the first safety contact 9 is closed.

[0037] The safety system 1 described above is primarily intended to be an inexpensive and efficient safety system for smaller boats which can be used also if only the driver 4 is on board.

[0038] Said ignition system 5 can be an electric or magnetic ignition system.

[0039] The safety system 1 is not limited to the embodiments described above and illustrated in the drawings, but may vary within the scope of subsequent claims. Thus, the safety devices 6, 7 can be designed in other ways with regard to their construction and function.

Claims

1. Safety system for motor boats, preferably smaller

motor boats, at which the motor boat engine (3) cooperates with an ignition system (5),

characterized in

that a first safety device (6) is provided to establish a physical connection between the driver (4) of the motor boat and the ignition system (5) which is broken or interrupted if the driver falls overboard in order to bring the ignition system (5) to break the operation of the motor boat engine (3),

that a second safety device (7) is provided to cooperate, through wireless communication between the driver (4) and the ignition system (5), with said ignition system (5) for bringing it to break the operation of the motor boat engine (3) if the driver (4) falls overboard, and that the second safety device (7) is provided to be activated irrespective of whether the first safety device (6) is activated or not.

2. Safety system according to claim 1, **characterized in**

that the first safety device (6) is provided to allow the driver (4) of the motor boat (2) to use said first safety device when he or she is in or at the driver's stand (8) of the motor boat,

that the first safety device (6) is provided to allow the driver (4) to disconnect the first safety device and/or disconnect himself or herself from said first safety device for being able to leave the driver's stand (8), and

that the second safety device (7) is provided to allow the driver (4) to leave the driver's stand (8) and move around on board the boat (2) at a distance from the driver's stand with the second safety device in activated condition.

3. Safety system according to claim 1 or 2, **characterized in that** the second safety device (7) can be mounted as an additional safety device in motor boats (2) which are already equipped with the first safety device (6).

4. Safety system according to any preceding claim, **characterized in**

that the first safety device (6) comprises a first safety contact (9) which is provided to cooperate with the ignition system (5), a coupling member (10) which can be connected to the first safety contact for activation thereof such that the ignition system (5) allows start of the motor boat engine (3), a member (11) which can be carried by the driver (4) and fastened to him or her, and a coupling means (12) which connects the portable member and the coupling member, whereby the first safety device allows the driver (4) to bring said coupling means with him or her if he or she falls overboard, whereby the coupling member is pulled out of its cooperation with the first safety contact, which brings the ignition system to break or interrupt the operation of the motor boat engine, and

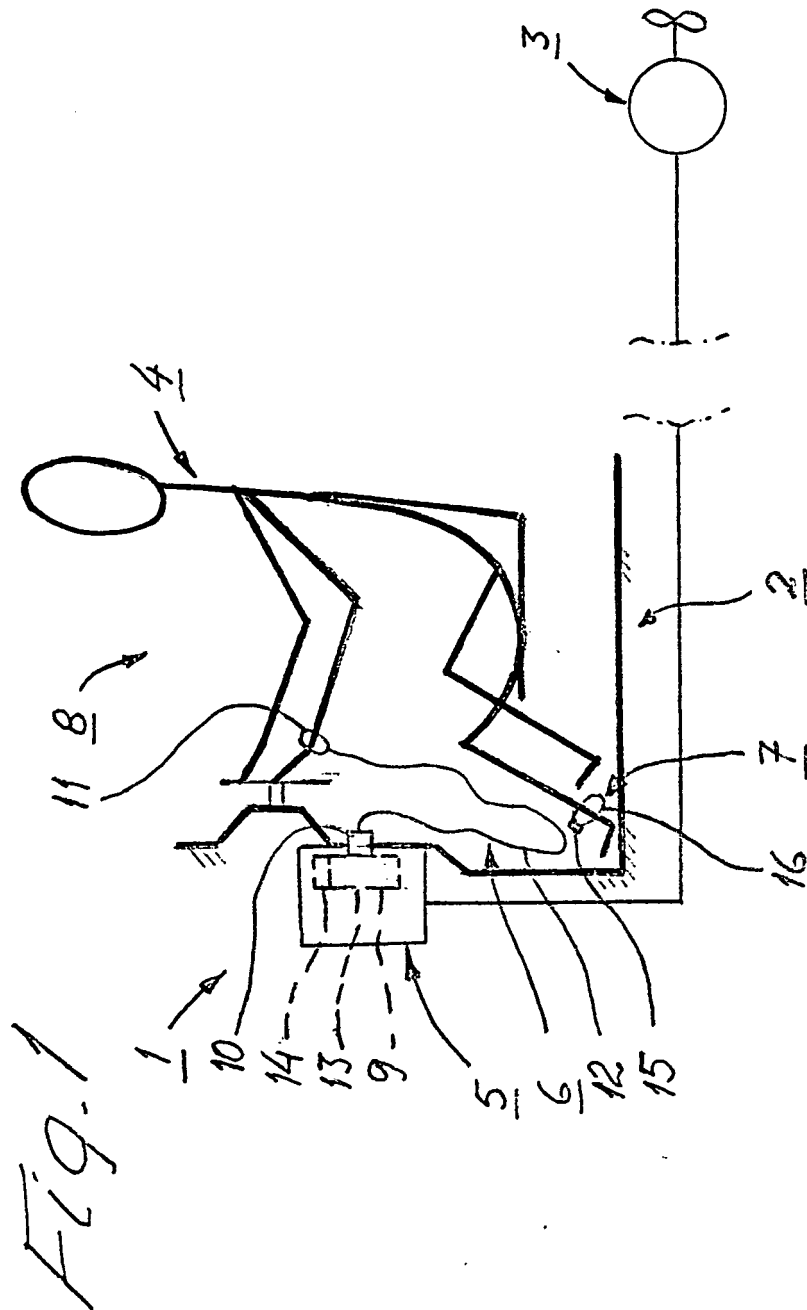
- that the second safety device comprises a second safety contact (13) which is provided to cooperate with the ignition system (5), a control unit (14) which is provided to cooperate with the second safety contact, and a unit (15) which can be carried by the driver (4) and fastened to him or her and which through wireless communication can bring the control unit to control the second safety contact to bring the ignition system to break the operation of the motor boat engine (3) if the driver falls overboard.
5. Safety system according to claim 4, **characterized in that** the first and second safety devices (6, 7) are provided to cooperate, through their first and second safety contacts (9, 13), with the ignition system (5) such that they together or separately can affect said ignition system to break or interrupt the operation of the motor boat engine (3).
 6. Safety system according to claim 4 or 5, **characterized in that** the first and second safety contacts (9, 13) are mounted in a part of the ignition system (5) between an ignition lock (17) belonging thereto and the motor boat engine (3).
 7. Safety system according to any of claims 4 - 6, **characterized in that** the first and second safety contacts (9, 13) are connected in series with each other in the ignition system (5).
 8. Safety system according to any of claims 4 - 7, **characterized in that** the first and second safety contacts (9, 13) are operative to disconnect the ignition system (5) for breaking or interrupting the operation of the motor boat engine (3).
 9. Safety system according to any of claims 4 - 8, **characterized in that** a restart device (18) is provided at the second safety contact (13) for restarting operation of the motor boat engine (3) when the second safety contact has been opened because the driver (4) has fallen overboard, and **that** the restart device (18) includes a by-pass (19) at the second safety contact (13) and a manually controlled contact (20) which cooperates with said by-pass for closing thereof for restarting operation of the motor boat engine (3).
 10. Safety system according to claim 9, **characterized in that** the first and second safety contacts (9, 13) are provided such that if the restart device (18) is closed and the motor boat engine (3) restarted, and the first safety contact (9) disconnected because the driver (4) falls overboard, then said first safety contact brings the ignition system (5) to break the operation of said engine.
 11. Safety system according to any of claims 4 - 7, **characterized in that** the first and second safety contacts (9, 13) are operative to close the ignition system (5) for breaking or interrupting the operation of the motor boat engine (3).
 12. Safety system according to claim 11, **characterized in that** the first and second safety contacts (9, 13) are provided such that if the first safety contact (9) is closed and the second safety contact (13) open, then the ignition system (5) permits starting and operation of the motor boat engine (3).
 13. Safety system according to claim 12, **characterized in that** the first and second safety contacts (9, 13) are provided such that if the first safety contact (9) is closed and the second safety contact (13) is closing because the driver (4) falls overboard, then said second safety contact brings the ignition system (5) to break the operation of the motor boat engine (3).
 14. Safety system according to claim 11 or 12, **characterized in that** the first and second safety contacts (9, 13) are provided such that if the first safety contact (9) is disconnected and the second safety contact (13) closed, then the ignition system (5) allows the motor boat engine (3) to be started and operated.
 15. Safety system according to claim 14, **characterized in that** the first and second safety contacts (9, 13) are provided such that if the second safety contact (13) is closed and the first safety contact (9) is closing because the driver (4) falls overboard, then the ignition system (5) is brought to break the operation of the motor boat engine (3).
 16. Safety system according to any of claims 4 - 6, **characterized in that** the first and second safety contacts (9, 13) are connected in parallel relative to each other in the ignition system (5).
 17. Safety system according to claim 16, **characterized in that** the first and second safety contacts (9, 13) are operative to disconnect the ignition system (5) for breaking or interrupting the operation of the motor boat engine (3).
 18. Safety system according to claim 17, **characterized in that** the first and second safety contacts (9, 13) are provided such that if the first safety contact (9) is disconnected and the second safety contact (13) closed, then the ignition system (5) allows the motor boat engine (3) to be started.
 19. Safety system according to claim 18, **characterized in that** the first and second safety contacts (9, 13) are provided such that if the second safety contact (13) is disconnected and the first safety contact (9)

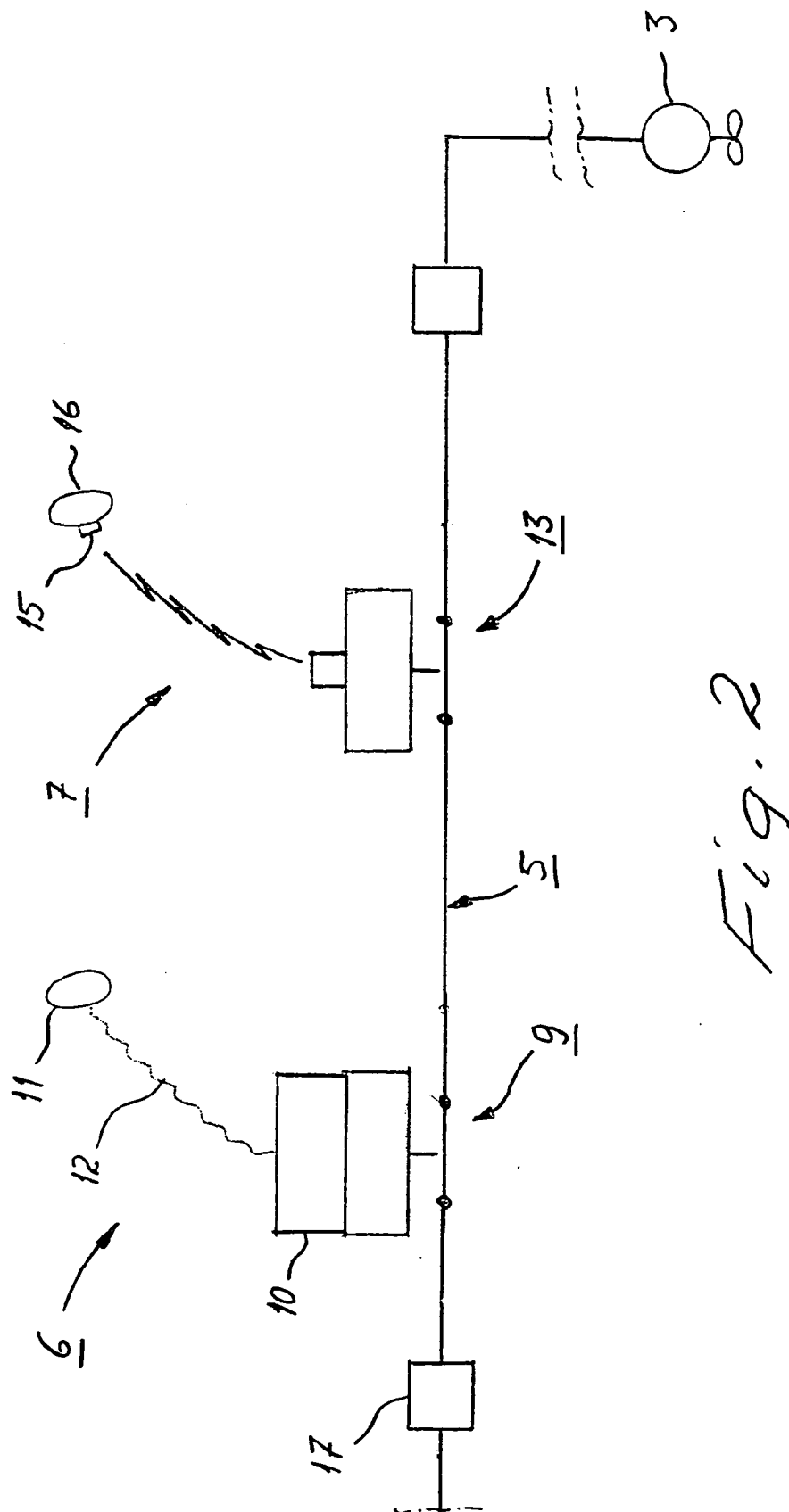
is disconnecting or opening because the driver (4) falls overboard, then the ignition system (5) is brought to break the operation of the motor boat engine (3).

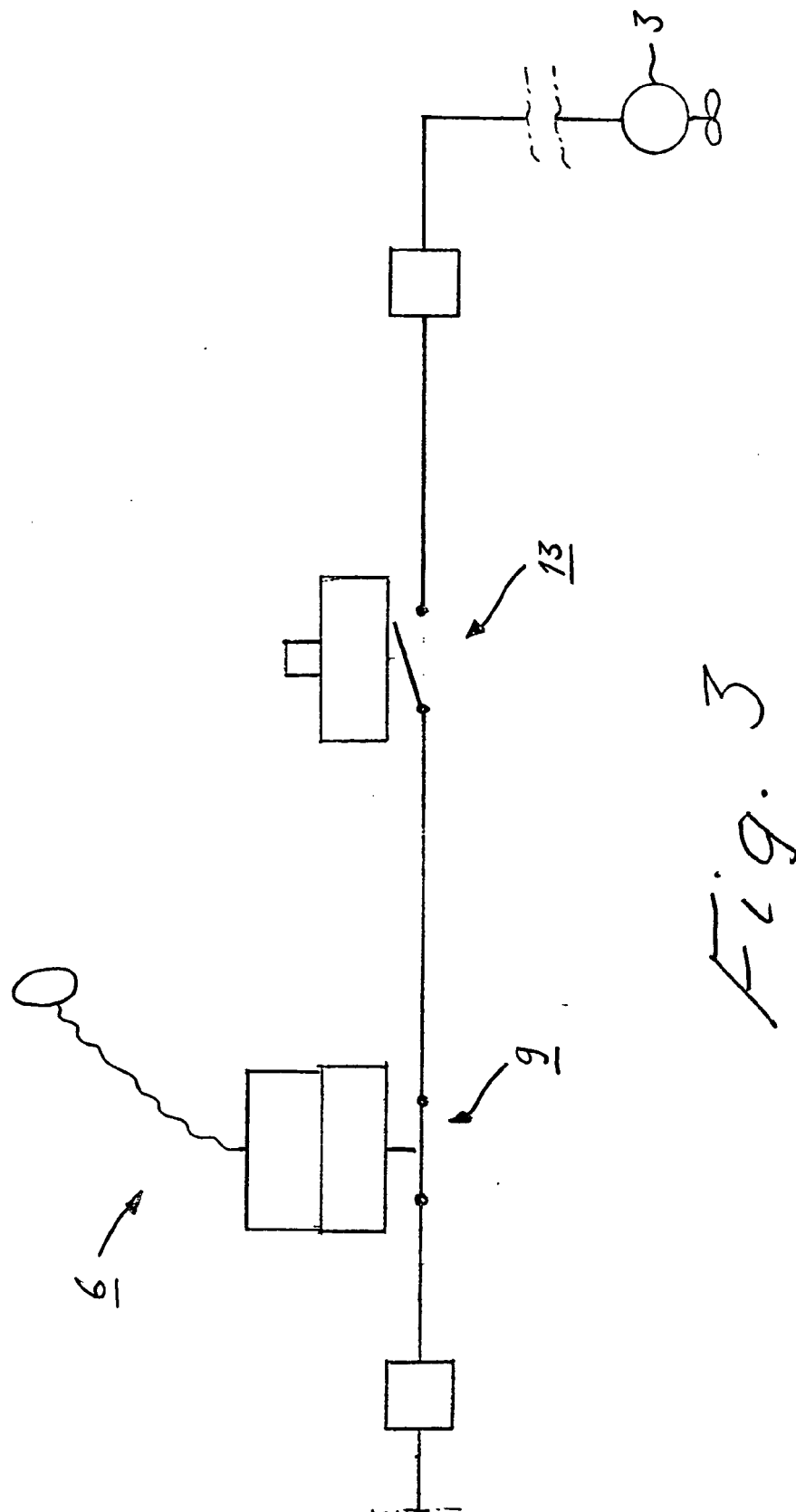
20. Safety system according to claim 19, **characterized in that** the first and second safety contacts (9, 13) are provided such that if said contacts are disconnected and the first safety contact (9) is closed, then the ignition system (5) allows the motor boat engine (3) to be started. 5 10
21. Safety system according to claim 20, **characterized in that** the first and second safety contacts (9, 13) are provided such that if the first safety contact (9) is disconnected and the second safety contact (13) is disconnecting or opening because the driver (4) falls overboard, then the ignition system (5) is brought to break the operation of the motor boat engine (3). 15 20
22. Safety system according to claim 16, **characterized in that** the first and second safety contacts (9, 13) are operative to close the ignition system (5) for breaking or interrupting the operation of the motor boat engine (3). 25
23. Safety system according to claim 22, **characterized in that** the first and second safety contacts (9, 13) are provided such that if both contacts are open or disconnected, then the motor boat engine (3) can be started and operated, and if the second safety contact (13) is closed because the driver (4) falls overboard, then the ignition system (5) is brought to stop the operation of the motor boat engine (3). 30 35
24. Safety system according to claim 23, **characterized in that** a manually operable disconnecting device (21) is provided at the second safety contact (13) for being able to restart the operation of the motor boat engine (3) when the second safety contact (13) has been closed because the driver (4) has fallen overboard, and **that** the operation of the motor boat engine (3) can be broken or interrupted by closing the first safety contact (9) if the driver (4) falls overboard. 40 45
25. Safety system according to any preceding claim, **characterized in that** the second safety device (7) comprises a unit (15) which can be carried by the driver (4) of the motor boat and in the form of a signal sender, and a control unit (14) in the form of a signal receiver, said units (14, 15) being provided to cooperate with the ignition system (5) such that when signals from the signal sender are broken or interrupted by water in which the driver lands if he or she falls overboard, the signal receiver is activated for bring-

ing the ignition system to break the operation of the motor boat engine (3).

26. Safety system according to any of claims 1 - 24, **characterized in that** the second safety device (7) comprises a unit (15) which can be carried by the driver (4) of the motor boat and in the form of a unit to be sensed, and a sensor unit which defines the control unit (14) in order to, when the unit to be sensed passes the sensor unit if the driver falls overboard, control the ignition system (5) to break the operation of the motor boat engine (3).







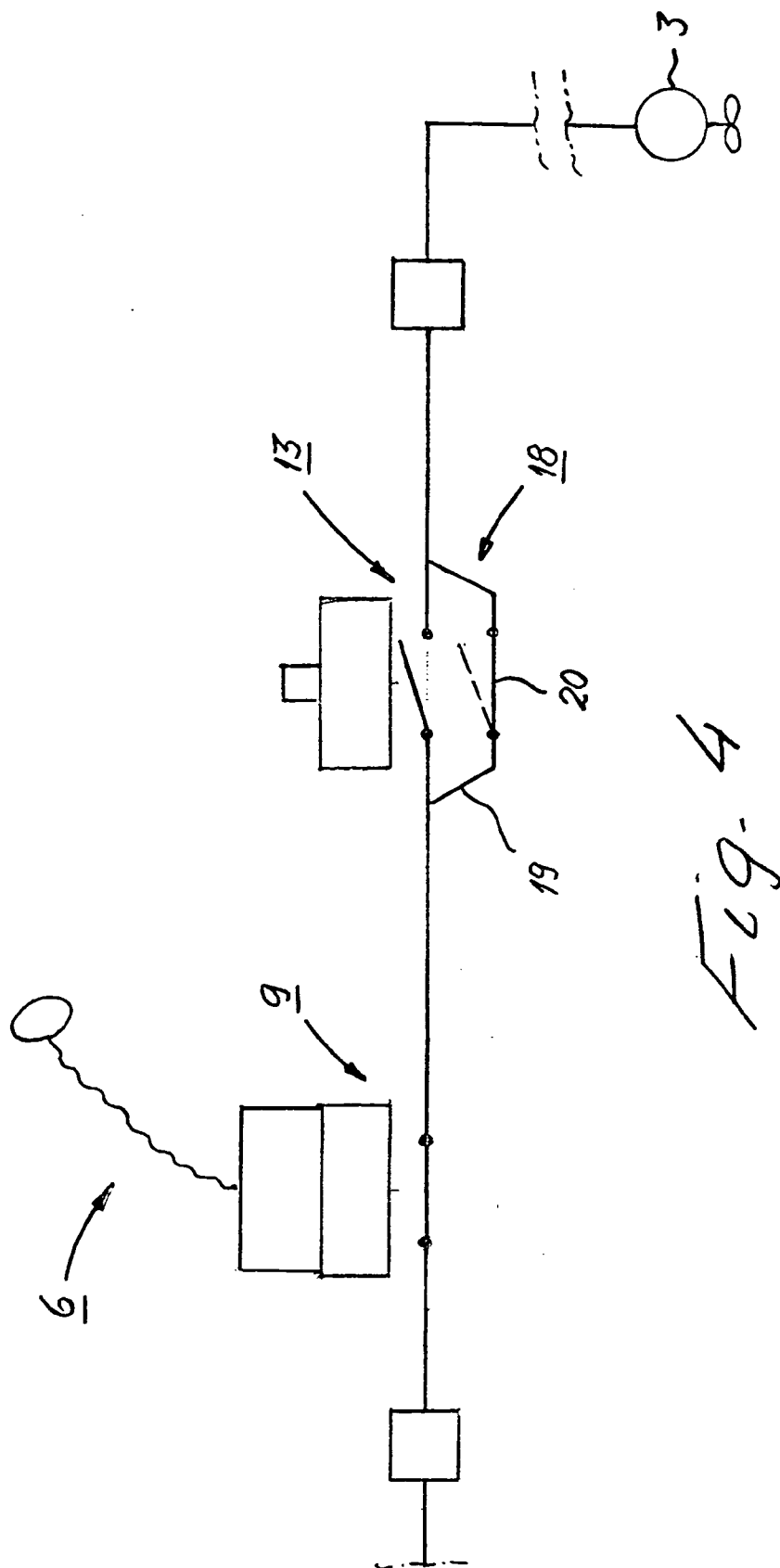


Fig. 4

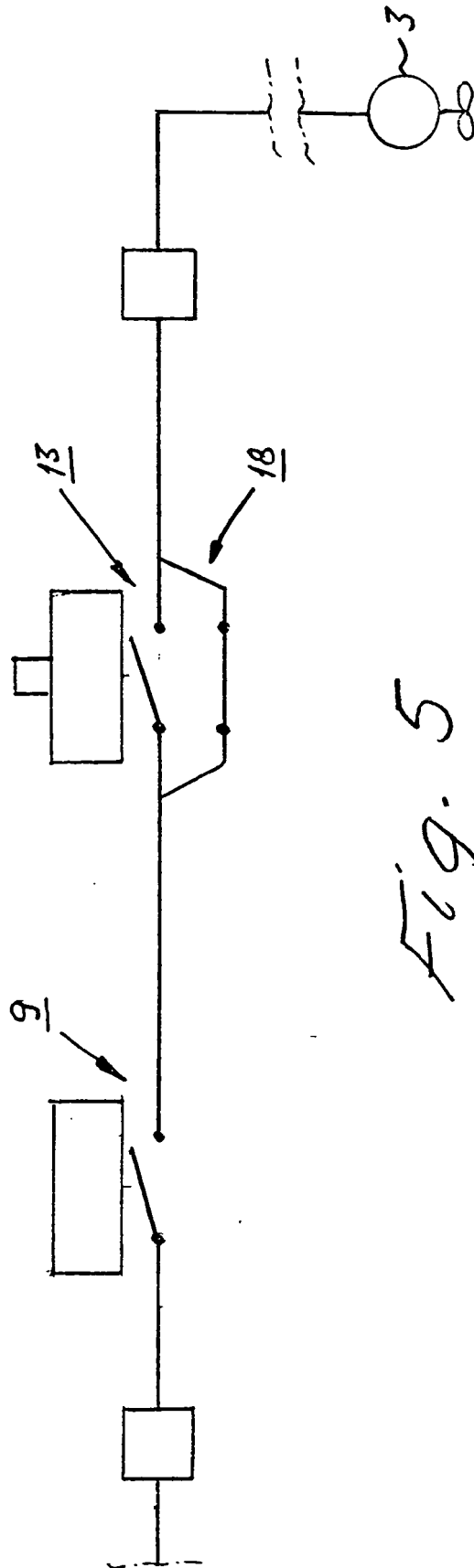


Fig. 5

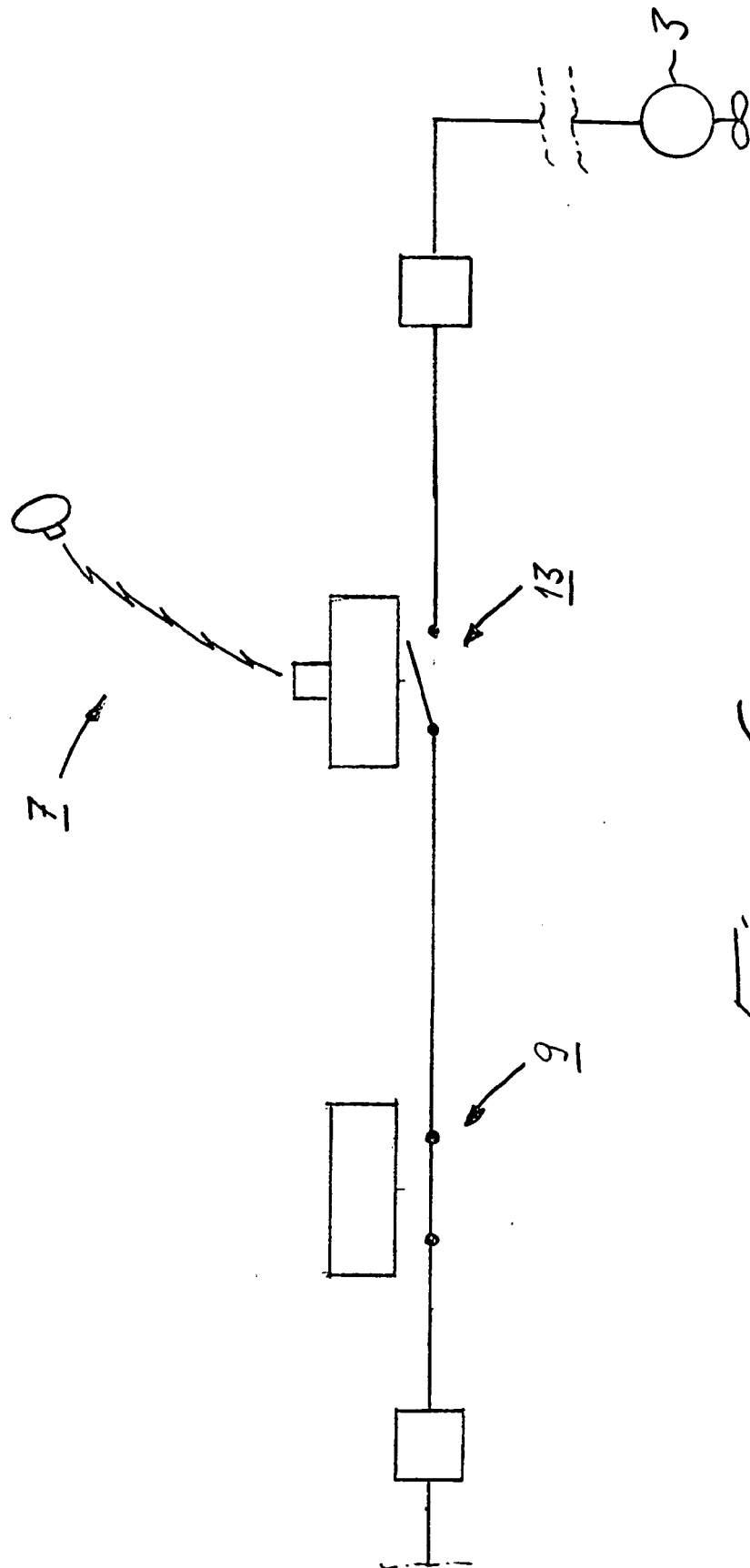
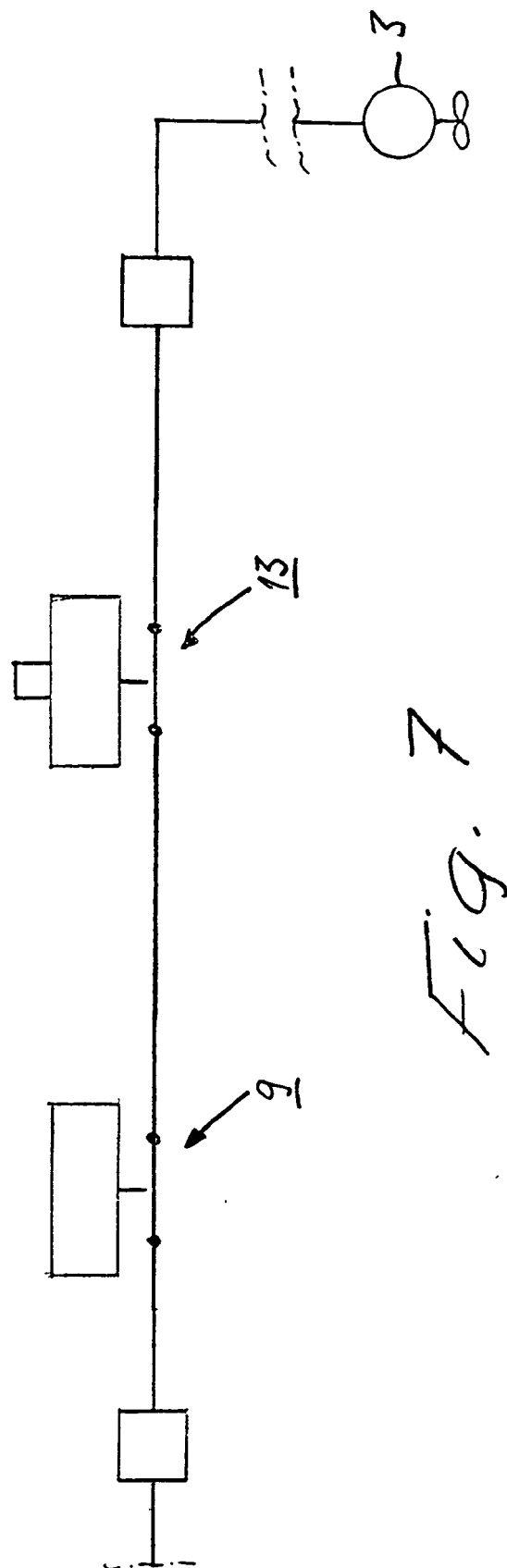


Fig. 6



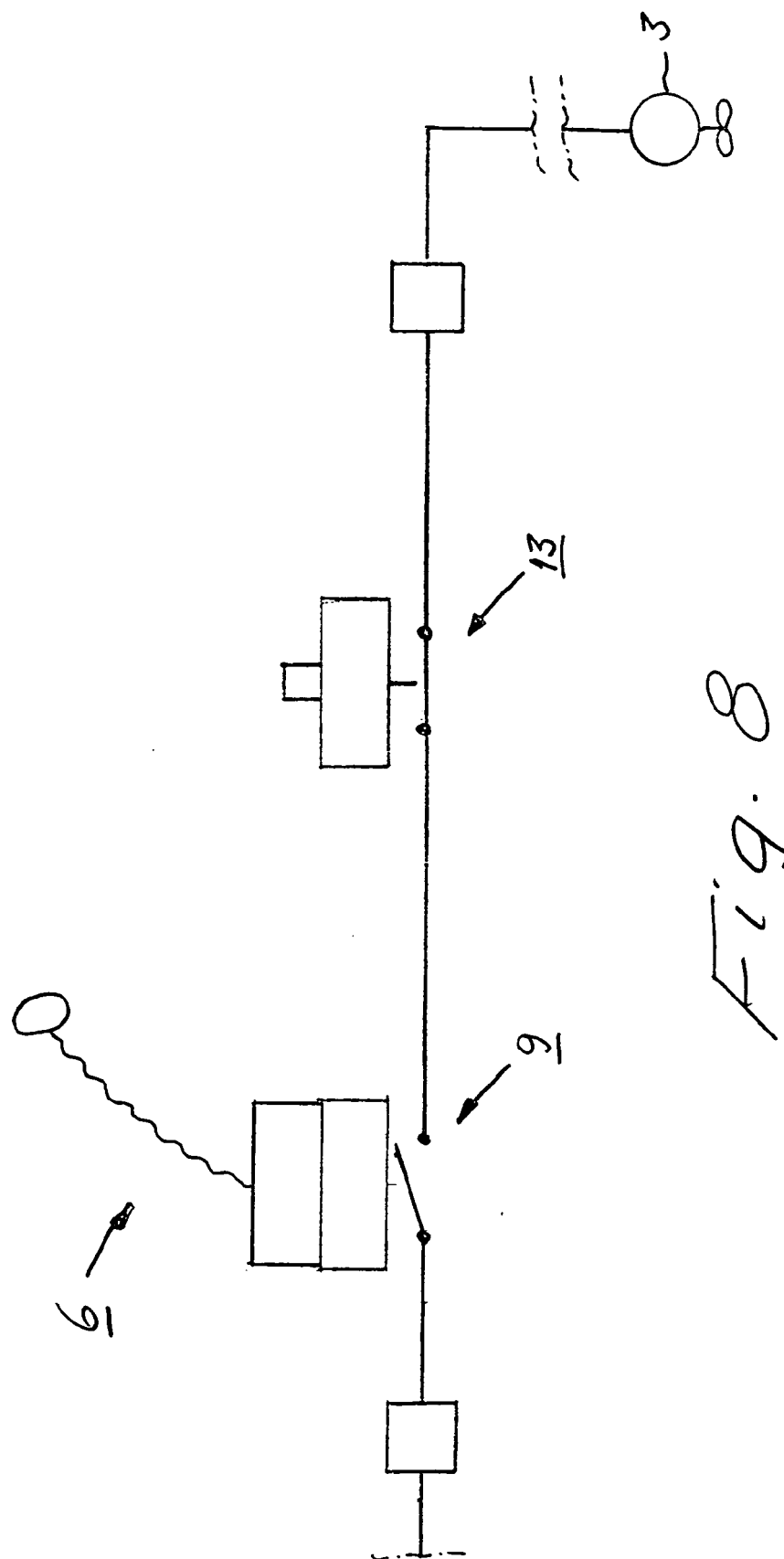


Fig. 8

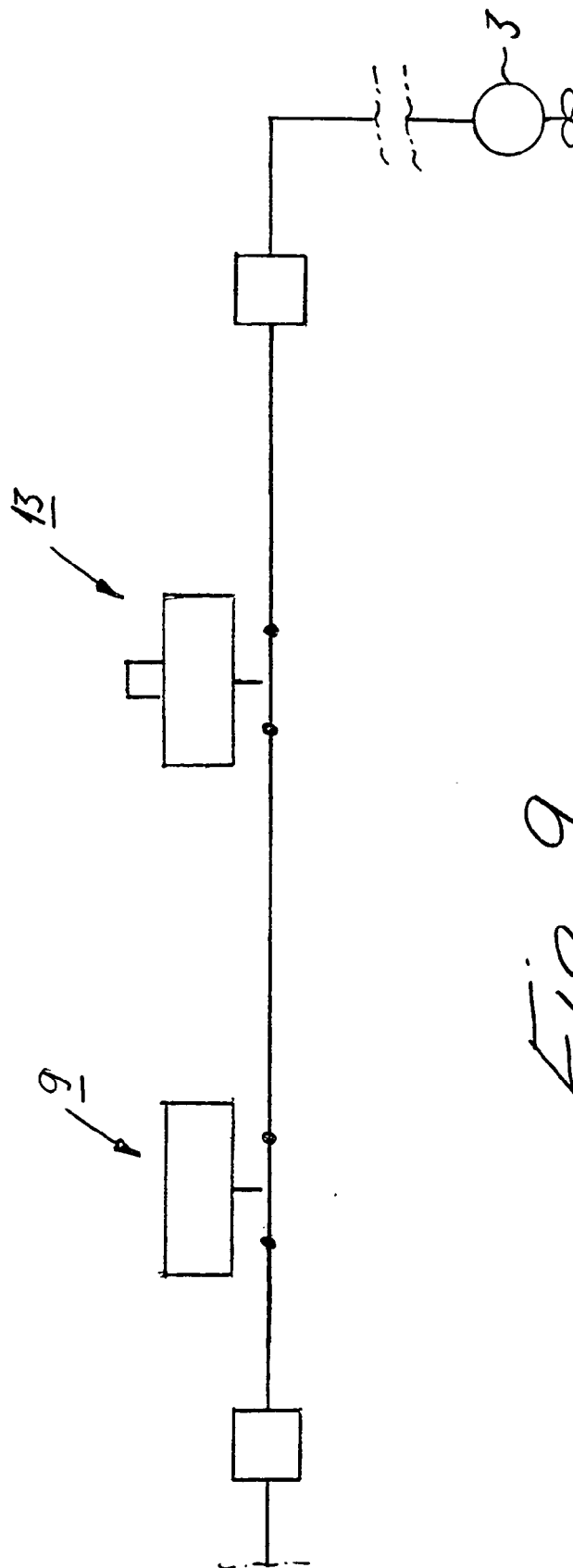


Fig. 9

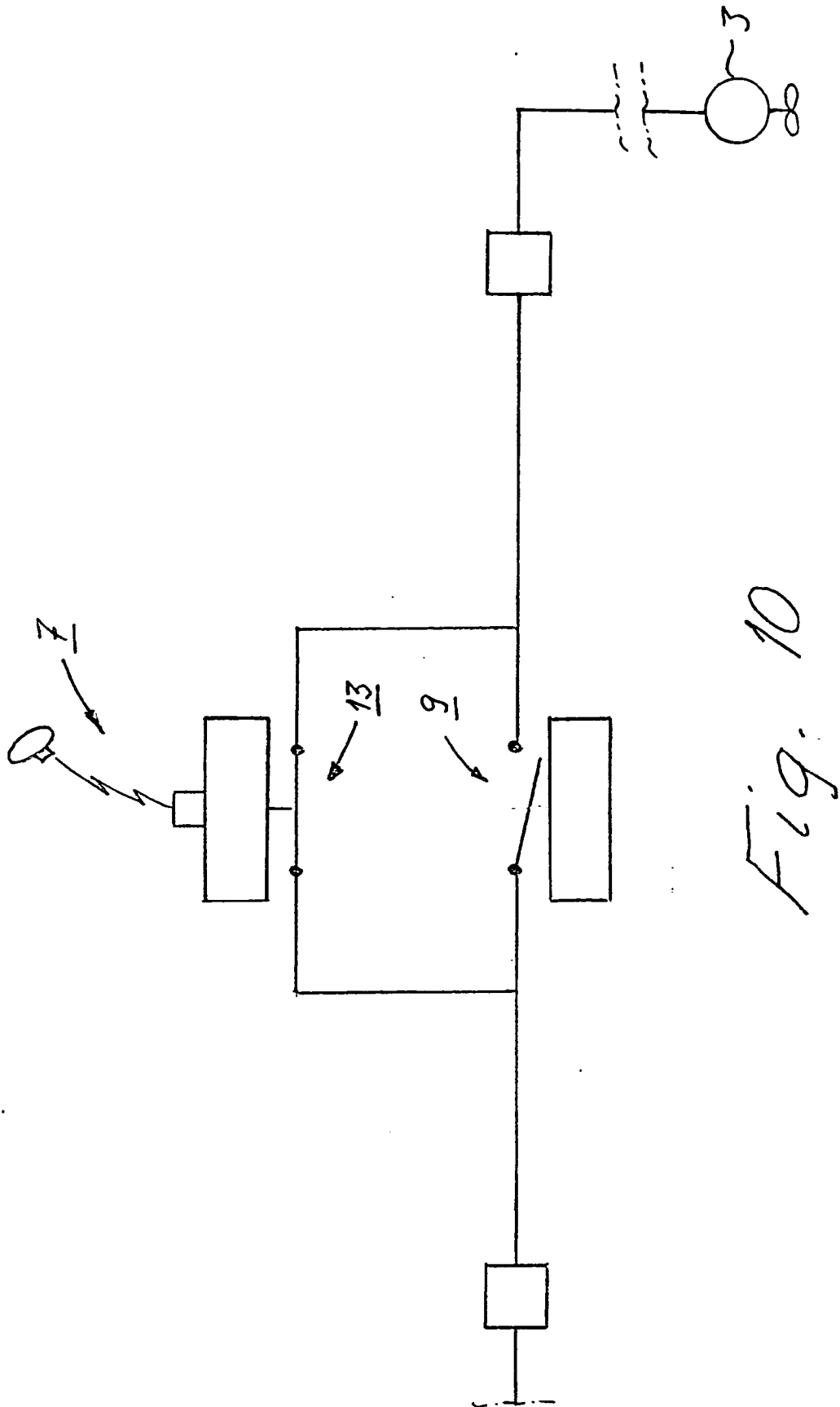
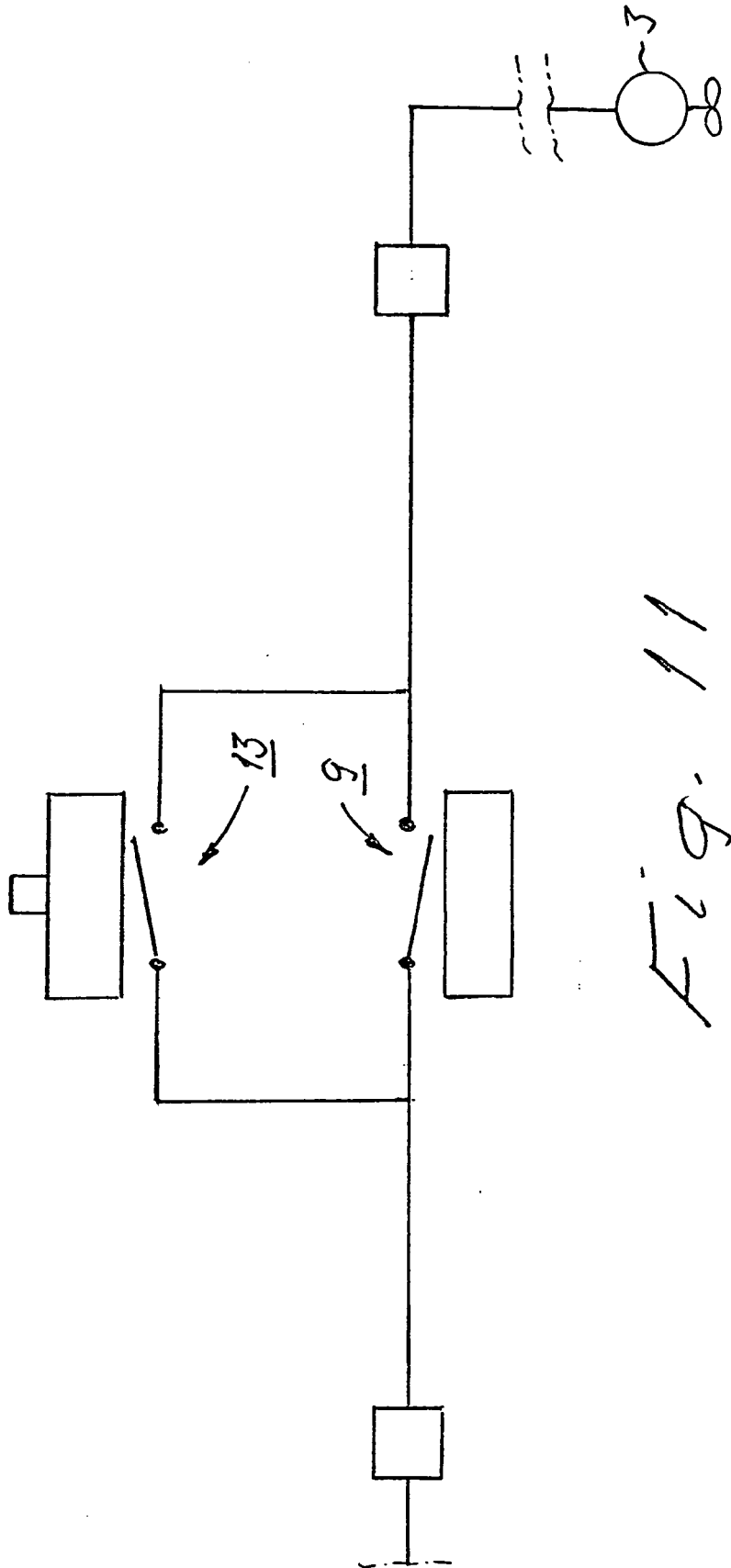


Fig. 10



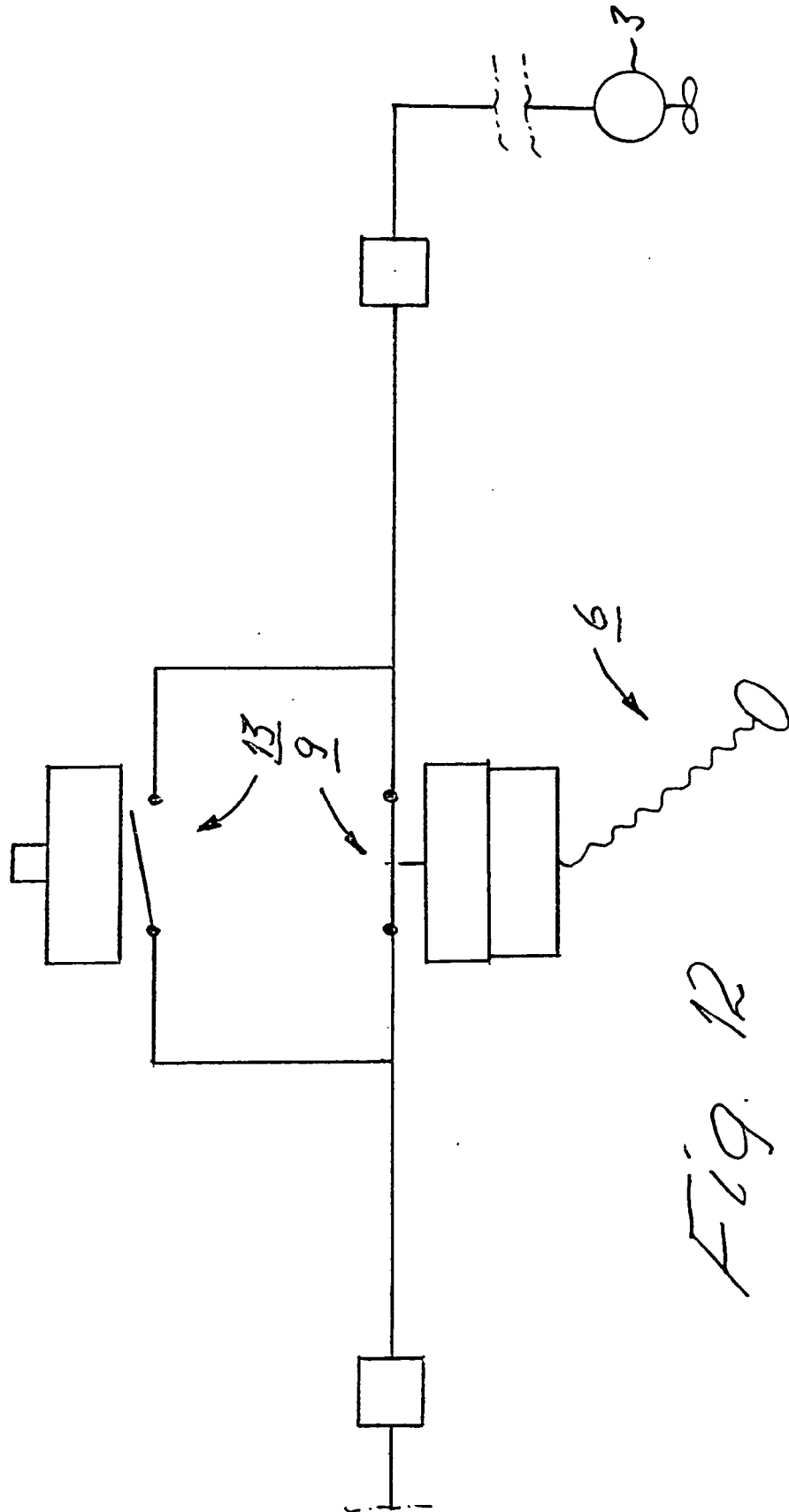


Fig. 12

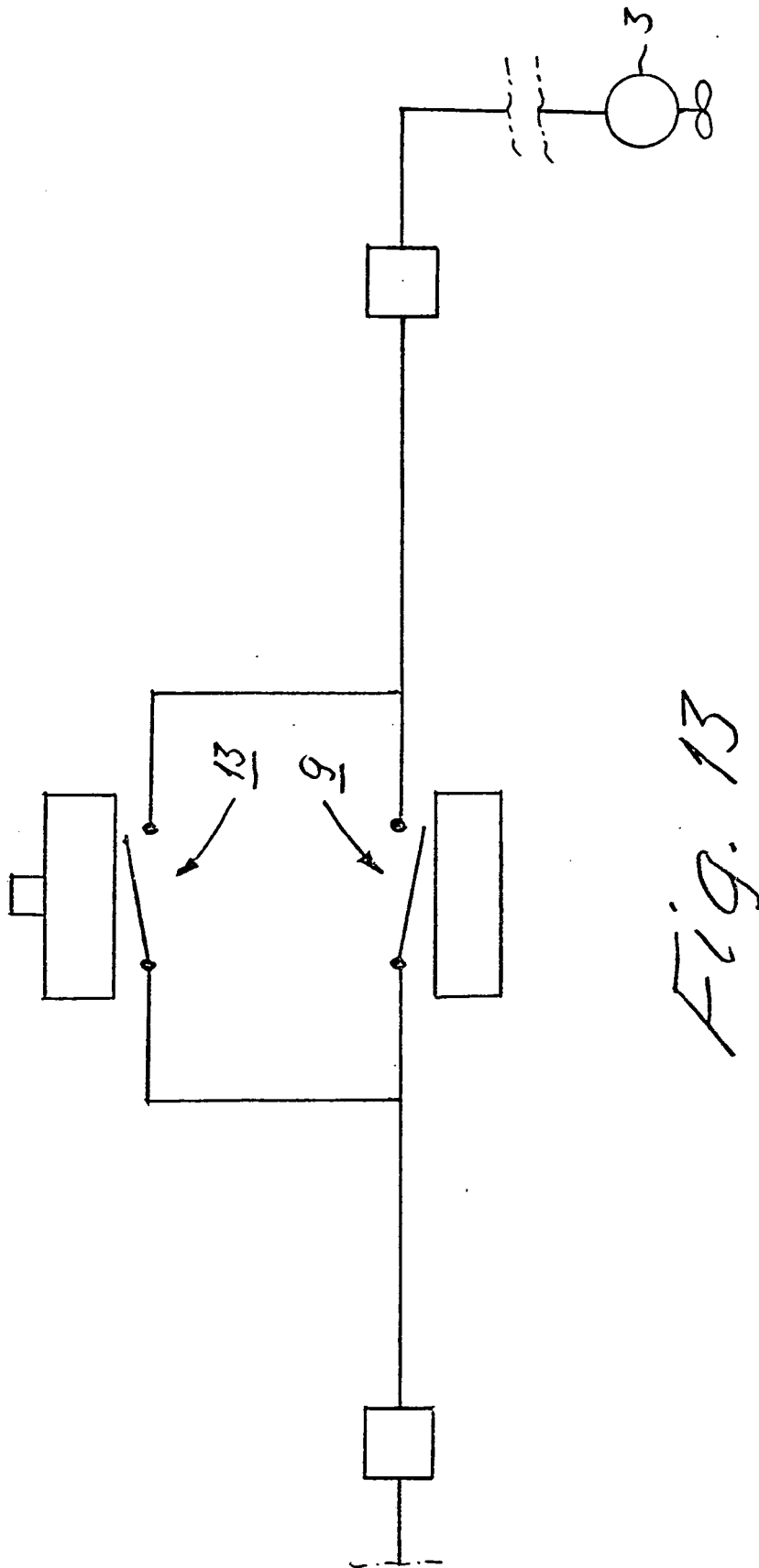
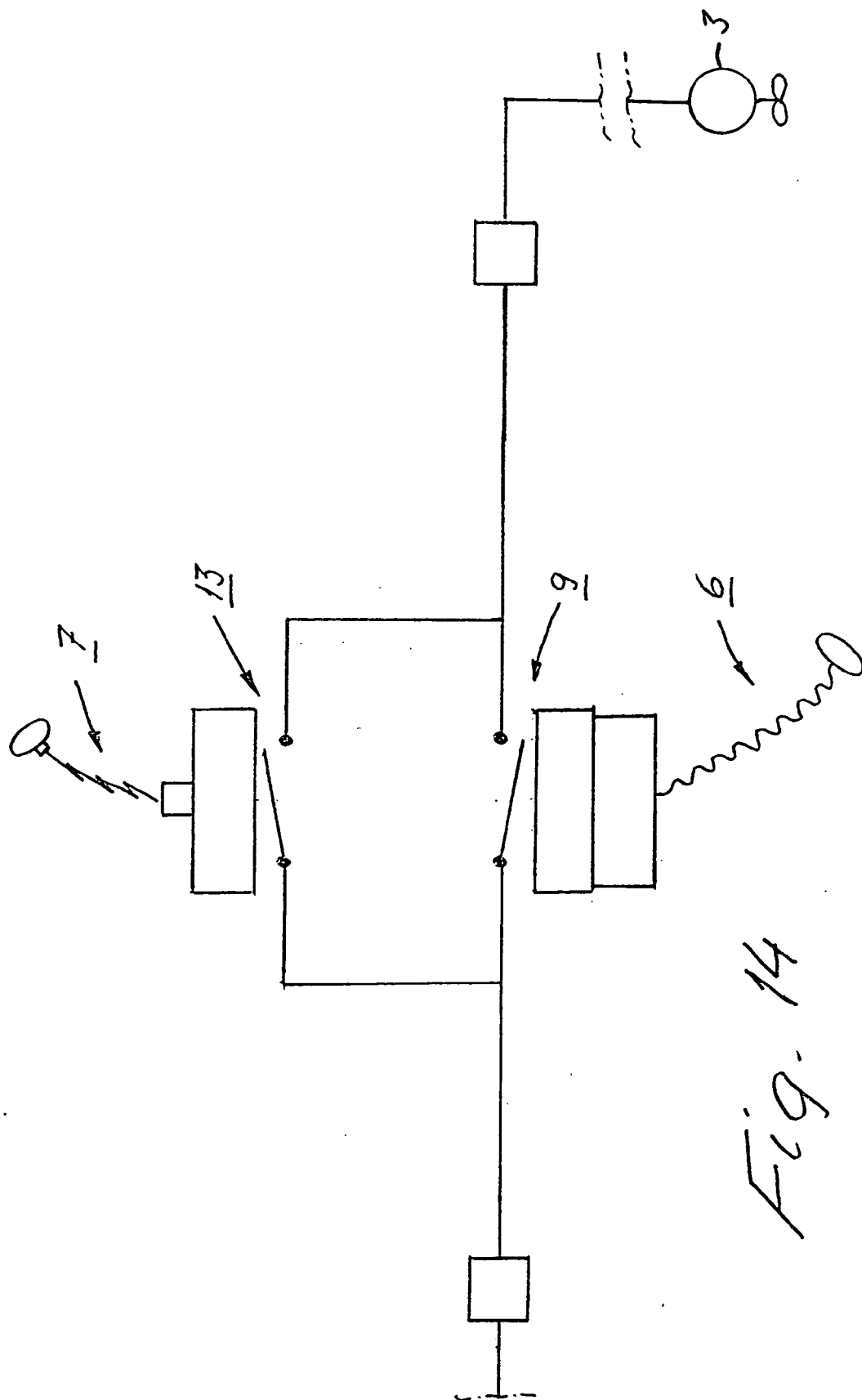
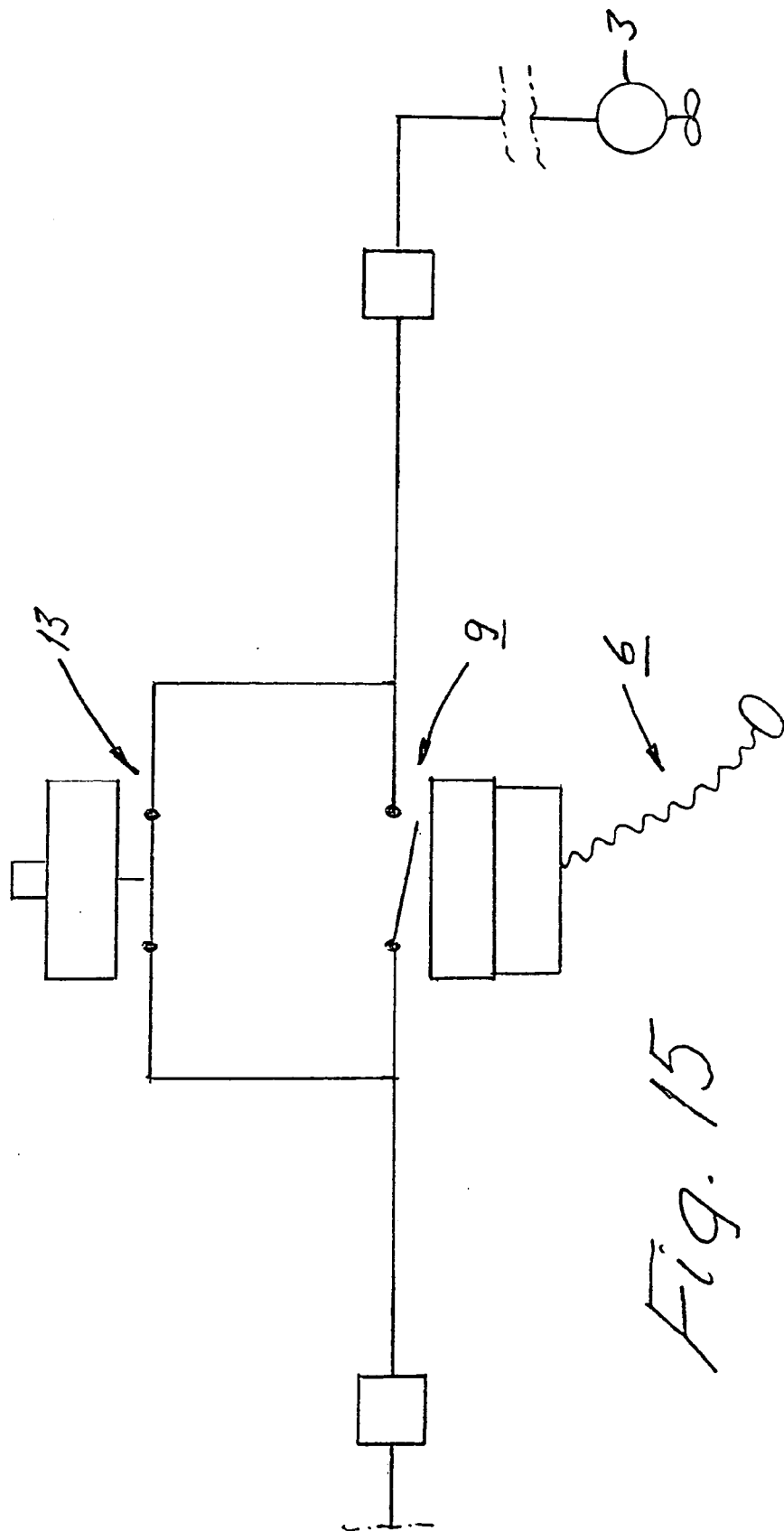


Fig. 13





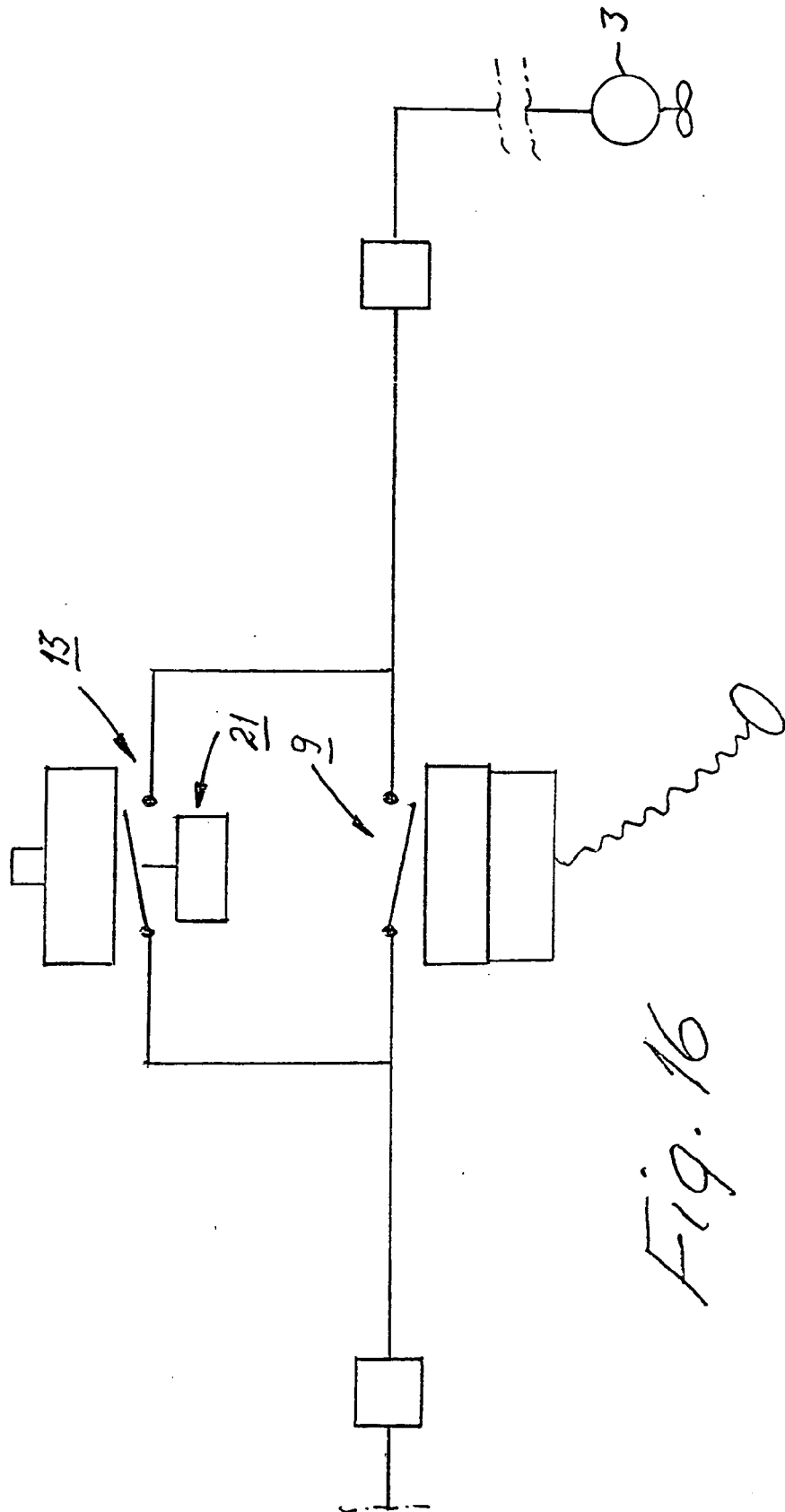
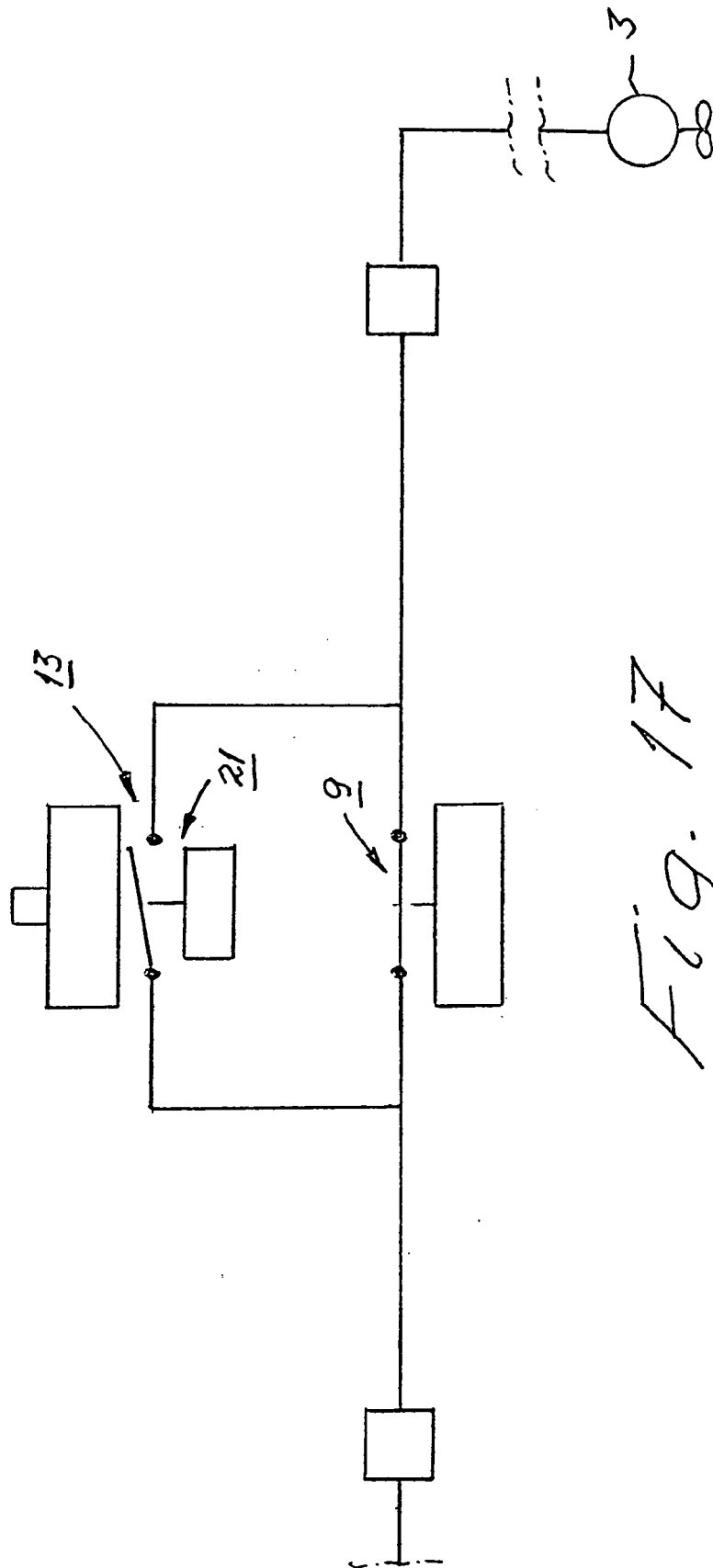


Fig. 16





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 02 2669

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	WO 2004/035379 A (HERMELIN CHRISTOFFER) 29 April 2004 (2004-04-29)	1-3	G08B21/08 B63C9/00
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A	* column 1, lines 30-61 *		
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A	* the whole document *		
A	US 4 630 205 A (OTAKA HIDEO) 16 December 1986 (1986-12-16)	1-26	TECHNICAL FIELDS SEARCHED (Int.Cl.7) B63C G08B
A	* the whole document *		
A	US 4 909 171 A (POWERS RICHARD A) 20 March 1990 (1990-03-20)	1-26	
A	* the whole document *		
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 2 December 2004	Examiner Wille, H-J
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 04 02 2669

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