(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
27 July 2006 (27.07.2006)

PCT

(10) International Publication Number
WO 2006/078182 A1

(51) International Patent Classification:
H04M 1/73 (2006.01) *H01M 10/46* (2006.01)

(21) International Application Number:
PCT/RU2005/000010

(22) International Filing Date: 14 January 2005 (14.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant and
(72) Inventor: **VOROBIEV, Andrei Leonidovich** [RU/RU]; ul. Molostovykh, 14-1-111, Moscow, 111558 (RU).

(74) Agent: **LAW FIRM "GORODISSKY & PARTNERS" LTD**; EGOROVA Galina Borisovna , B.Spasskaya ul., 25, stroenie 3, Moscow, 129010 (RU).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2006/078182 A1

(54) Title: INTELLECTUAL UNIVERSAL BATTERY CHARGING DEVICE FOR MOBILE PHONES

(57) Abstract: Disclosed are intellectual universal charging device and a method for charging batteries of a mobile telephone without necessity of detaching the battery from the mobile telephone. The device comprises a main unit for connection to an external power source and at least one adapter. Each adapter is unique for a particular model of the mobile phone and serves for connecting the mobile phone of this particular model to the main unit. After connection of the mobile phone to the main unit via the adapter, an information signal corresponding to current and voltage required for charging the battery of the mobile phone of the particular model in optimal regime is transferred from the adapter to the main unit, after which, the main unit forms the indicated current and voltage and transfers them over power lines via the adapter to the connected mobile phone. The device according to the present invention can be used for charging batteries of other appliances supplied with a batteries.

INTELLECTUAL UNIVERSAL BATTERY CHARGING DEVICE FOR MOBILE PHONES

Field of the invention

The present invention relates to the field of usage of mobile phones and more particularly to a universal battery charging device for mobile telephones and a method thereof.

Description of Related Art

Mobile (cellular) telephones that at present are widely used comprise batteries which supply electric power to the phone and require to be recharged from time to time from an external source of power.

Modern models of mobile phones are offered for sale together with a charger block (converter or adapter) connected with the phone through a specific connector and providing the supply of required voltage and current.

Among the problems faced by the users of the mobile phones is necessity to recharge the battery often. The user is forced to carry with him the block of the converter and connect it, for example, to domestic electric power circuit to charge the battery of the phone. Despite the fact that sizes and weight of the converter block are reducing due to constant improvement of phone models, the need to carry it is inconvenient.

Technical solutions providing the recharge of the mobile phones batteries by use of a universal charger are known. Universality of this device, on the one hand, is that there is a single converter block and, in addition, adapters applicable to connect the detached battery with the converter block are offered. For other types of the battery (for example, of different size or having specific outlet configuration) different adapter of corresponding shape should be used. Such universal charger is described, for example, in US patent No. 6,014,010.

On the other hand, universality of the battery chargers for the mobile phones is that the chargers provide output current that may be of two values: for "smooth" - nominal charge (usually about 150-350 mA) and for prompt charge - with high charge current (500-800 mA).

Well known are universal charger devices where the users should manually set the required current (or voltage) by a special switch mounted directly on the universal

charger.

It is also known that there are charging devices which charge the batteries if there is a feedback from the battery - see US patents Nos. 4,443,752 and 6,184,653. A feedback is provided by the signal from a temperature sensor placed directly on the battery. In case of increasing of previously specified temperature, the charge of the battery is stopped. Such a charger provides the charge of several batteries simultaneously. However, it is not disclosed whether these batteries are the same or different.

Among other devices similar to the present invention is the device called Juice, that is capable to charge simultaneously a mobile phone and a note-book. This device is submitted on the market in combination with a charger block and an adapter, applicable to particular type of the mobile telephone and the note-book. For each model of the note-book or the mobile telephone the user should buy corresponding adapter. However, while this device allows to charge simultaneously the note-book and the battery of the mobile phone, it does not provide optimal charge regime of the battery, which is its sufficient disadvantage. Besides, this adapter represents the simple connector with different standard sizes.

Well-known technical solutions are characterised by one or concurrently several disadvantages, mentioned below.

When changing model of a mobile phone, which happens often due to appearance of modern phones with extended opportunities on the market, the user is forced to replace the charger.

The charger itself is rather heavy and the necessity to carry it is inconvenient, especially for those owners of the mobile phones who mainly act indoors and fail to get frequent access to the external electric power circuit.

The known charger may provide charge of only one storage battery.

During charging process by a charger a battery should be detached from a phone, i.e. at the moment when the battery is under charge, the phone is not functioning.

Referring to well-known chargers, it is not taken into consideration that each battery (usually - for each model of the phone) possesses an optimal charge regime. Due to different capacity of the batteries, the ratio "battery capacity/optimal charge current" is not a constant value for all batteries. For a battery, for instance, with capacity

of 1500 mA*hour, the current for its "normal" charge will not be the same as "normal" charge current for a battery of different capacity, for example, of 500 mA*hour.

Taking into account the abovementioned there is a necessity to have a universal charging device that is capable to charge mobile phones batteries of different types (models) in an optimum way for each particular battery, and the charge could be effected simultaneously for several phones of different models. When widely used in a society such charger could provide the group of people, for example in offices, hotels, air planes, trains, auto cars and in other transportation vehicles with a possibility to charge mobile phones of different companies-manufactures. In such cases there is no need for each user to carry with him a charger, delivered for together with a mobile telephone. At the same time, the user should be assured, that when using the charger according to the present invention, the battery of his telephone should be charged in an optimum way, so that negative influence to its parameters and life duration will be eliminated.

Summary of the invention

The present invention discloses an intellectual universal charging device (IUCD), providing simultaneous charge of one or several mobile phones of different models with batteries inserted in them, i.e. the charge of a battery is effected without its detaching from the mobile telephone.

At the same time, it should be especially noted that the present invention provides simultaneous charging several devices provided with batteries, wherein models of these devices can be as different as the same.

According to the present invention, disclosed is a method of charging by means of the intellectual universal charging device (IUCD) providing charging at least one mobile phone or another apparatus supplied with a battery inserted in it, i.e. charging of the battery is performed without detaching it from the mobile phone.

Method according to the present invention is applicable for charging a battery of devices (mobile phones or other apparatuses) as of the same model as of different models, as one by one as several ones simultaneously.

It should be noted that the present invention is equally applicable for other devices supplied with a battery, such as portable computers, video cameras, cameras, domestic electrical devices, toys, etc.

According to the present invention, IUCD consists of a main unit connected through the corresponding conductor with an external power circuit, and different adapters connected with the main unit by way of detachable connectors.

Each adapter is designed for a specific model of a mobile phone (or another device) and has two connectors, via one of which the mobile phone of particular model with inserted battery is connected, and via another the adapter with attached phone (or another device) is connected to one of output joints of the main unit.

UCD according to the present invention provides simultaneous connection and charge of one or more mobile phones (other apparatuses). Models of mobile phones being charged (in fact - of the batteries being charged) are either different or the same. At the same time, for charging the battery there is no need to detach the battery from the mobile phone, i.e. if a device being charged is a mobile phone, the phone remains fully in-use.

A main unit, while connecting an adapter with the coupled to the adapter a mobile phone (another device) the battery of which is required to be charged to one of output joints of the main unit, generates current and voltage necessary for operation of the adapter. At the same time, each adapter forms and transfers to the main unit data of a particular model of connected mobile phone (another device). In other words, each adapter, in fact, informs the main unit that to it (to the main unit) a mobile phone (another device) is connected, the battery of which is required to be charged in accordance with the parameters (voltage and current) specified by manufactures of this model of the phone (another device) as being required, wherein information which allows to determine these parameters is transferred to the main unit from the adapter. Afterwards, the main unit, based on the received parameter on charging the battery of attached device, forms current and voltage necessary for supply power to battery charging circuits in this device in a properly manner.

Brief description of the drawings

It is stated below the description of preferable embodiments with reference to the attached drawings, wherein:

Fig.1 illustrates the main units of the universal charging device according to one embodiment of the present invention;

Fig.2 illustrates a scheme describing the components and method of connection

of an adapter and a device for charging a battery of attached mobile phone or another device.

Description of preferable embodiments of the present invention

Preferable embodiments of the present invention are provided below. It should be noted that the description is provided with respect to charging a battery of a mobile phone, however, the invention is also equally applicable to other types of apparatuses having batteries which should be charged from time to time. Such apparatuses, as mentioned above, are portable computers, video cameras, cameras, domestic electronic devices, toys, etc.

While the description is provided for embodiments with a mobile phones, it should be taken into consideration that batteries of such mentioned above apparatus can be charged instead of a battery of a mobile phone.

IUCD, according to one embodiment of the present invention, comprises a main unit, connected to an external source of power, and several adapters connected with the main unit by corresponding joints.

As an external source of power a domestic electric circuit (for example, with voltage of 110-220 V), a source of constant voltage (for example, of 12 V in the auto car), an on-board power source of any transport vehicle (plane, train, etc.), a converter transforming alternating current into direct current can be used. A manner of connection to such external power source (for example, by means of a joint, a connector etc.) is not a object of the present invention and is not disclosed in details, however, such manner of connection is apparent to those skilled in the art.

The main unit transforms energy from the external source of power into voltage and current, which provide optimal charge regime for each of the mobile phones, simultaneously or separately connected to the main unit via corresponding adapters. Besides, the main unit protects from short circuit and provides galvanic isolation from the external source of power.

In stated below description the identical units are marked with identical numbers. Referring to Fig.l, the universal battery charging device comprises the main unit (1), connected to the external source of power and converting voltage and current of the external power source into voltage and current required for operation of the rest components of the charger. One or several mobile phones (4) with batteries inserted in

them are connected to the main unit by means of adapters (3), each of which corresponds to a specific model of a mobile phone, and conductors (2). The adapters with corresponding mobile phone attached to each of them can be coupled to the maim unit as simultaneously (for providing simultaneous charge of batteries of several mobile phones) as one by one (for charging of a battery of only one mobile phone at the moment). Each conductor has terminal connectors (2a) and (2b) on its ends as well as one or several signal conductors linking these connectors with each other. In the most preferable embodiment, all terminal connectors (2a) are identical and serve for connection of the adapter to the main unit (1) which has several mate connectors (2c) for coupling to corresponding terminal connectors (2a) of the adapters. The connector (2b) of each of the adapters is unique for corresponding model of the mobile phone, and more particularly - for the type of the connector (i.e. has corresponding shape, geometrical dimensions, layout and quantity of contacts) of the mobile phone. Thus, the type of connector (2b) defines the adapter itself as well as the model of mobile phone that can be attached to the main unit for charging the battery through this adapter. When changing the mobile phone, the user should only substitute the adapter (4) and respective conductor with adapter compatible with the new model of mobile phone. It is preferable to combine adapter (3) and conductor (2) into one constructive unit for providing to a user simultaneously.

In one of embodiments of the present invention, the conductor (2) and the adapter (3) can be integrated into the main unit (1), and thus, corresponding output joint in the main unit represents a terminal connector (2b) and the phone is connected by means of the joint (2b) directly to the main unit.

In one of embodiments of the present invention each adapter contains ROM (read only memory) which stores a code disclosed below. Output contacts of ROM device are connected with signal conductors of the adapter. In another embodiment the adapter may comprise a switch scheme, instead of ROM, that provides generation and outputting said parallel code at signal conductors of the adapter.

The number of signal conductors in the conductor may be different, but if several, then the information signal indicates corresponding bits of the code in parallel or parallel-serial manner. If the number of signal conductors between the adapter and the main unit is one (1), then transferring signal from ROM (or switch scheme) into the

main block should be effected in a serial manner.

Signal conductors are connected only with the adapter and are not connected to the contacts of the attached mobile phone. Thus, the mobile phone is connected with the main block only via the power conductors passing through the corresponding adapter.

When connecting the mobile phone with inserted battery to the corresponding adapter, and while connecting this adapter to the presently free output joint of the main unit, voltage and current required to normal operation of the ROM (or a switch scheme) in the adapter are supplied to the adapter via a power lines. In this case the ROM scheme (or a switch scheme) provides the signal conductors (or only one conductor) of the adapter with information signal forming the code which corresponds to electric charge parameters of the battery of the particular mobile phone connected to this adapter. At the same time, charge parameters mean required current and voltage specified by the manufacturers of batteries of specific capacity. Values of these required current and voltage can be, for example, stored in a storage device in the main unit.

As mentioned above, for different batteries, of even one designation, made by one and the same manufacturer, but differ by capacity, the optimal charge parameters are different. Therefore, the required charge parameters can be set equal to the optimum values.

In the embodiment when the number of parallel signal conductors is equal to **k**, and if each signal conductor corresponds to one bit, the number of possible combinations of connectors types is 2^k. For serial transfer of information signal along single signal conductor the number of bits forming the code is not limited. However, for covering the most widely used models of mobile phones it is enough to have 10 bits.

Information signal forming this code is transferred via connector (2a) of the adapter and the connector (2c) of the main unit into the main unit (1).

The main unit indicated in Fig.2 by a dashed line comprises a means (1a) for receiving information signal (i.e. a code) corresponding to charge parameters of the mobile phone from the adapter (3) and for generating a control signal in response as well as one or more means (5) providing receipt of the control signal from the means (1a) and generating and outputting current and voltage to the corresponding adapter for charging the battery of the mobile phone connected to this adapter. Means (1a) may be implemented as a micro-controller combined with digital-to-analogue converter for

forming an analogue signal supplied to the means (5) for generating and outputting current and voltage in accordance with the values of the required current and voltage. Means (5) can be implemented by discrete elements or integral circuits in a manner apparent for those skilled in the art.

Fig.2 shows a means (1) which represents the converter transforming external voltage (for example, from domestic or on-board electric circuit) into currents and voltages required for operations of the rest components of the main unit and the adapter. Embodiment of such converter is apparent for those skilled in the art.

It's necessary to point out that in one of embodiments, the main block contains several means (1a) each of which is combined with corresponding one means (5) so forming the so-called "channel" for connection of corresponding adapter. Such combined unit may be implemented as a micro-controller. That means that the main unit contains several channels, working independently, each of them containing a micro-controller.

In another embodiment, the main block contains only one means (1a) and several means (5) per each adapter. In this case the means (1a) is also a micro-controller, and the means (5) is implemented by schemes for generating current and voltage necessary for supplying to the mobile phone with inserted battery. I.e. in this case the main unit also has several channels operating independently but it is only one microcontroller for all channels.

After receiving the information signal from connected adapter (3) in the main unit, the means (1a) forms the control signal supplied to the means (5) for generating respective current and voltage and transferring them to the power conductors at its output joint. These current and voltage are supplied via power lines through the adapter to the connected mobile phone with inserted battery to provide the charging process.

In preferable embodiment of the present invention, each adapter has light indication provided, for example, by light-emitting diodes, that shows the state of charging process: charge in progress, charge finished, or charge is impossible, etc. Particular schemes of forming such signals are known in the art and are not illustrated in the present description.

It should be noted again, that IUCD of the present invention can be used for charging not only batteries of mobile phones but also batteries of other apparatuses or

electronic devices supplied by batteries, for example, portable computers, video cameras, toys, etc. At the same time, an adapter according to disclosure of the present invention is necessary for such electronic device.

One of embodiments of the present invention provides use of one adapter (3) connected to the main unit (1) by means of several conductors (2) simultaneously, i.e. the adapter represents combination of one unit (3) and several conductors (2). At the same time, the adapter transfers information signals corresponding to the required charge parameters of a battery simultaneously via several joints (2c) to the main unit. This connection of a device for charging its battery may be advantageous when power necessary for charging the battery is higher than power of one channel and a sum power can be obtained by summing power of few channels.

Method of the present invention comprises the steps according to which current and voltage necessary for operating an adapter are supplied at output pins of an output joint of the main unit. After that, the adapter provides at the signal conductors an information signal corresponding to the required charge parameters of a battery of a device (a mobile phone or an electronic device) connected by means of the adapter. In response to receipt of the information signal the main unit generates the required current and voltage for charging battery of a mobile phone or an electronic device connected to the adapter and transfers the generated current and voltage via the adapter to the coupled device for charging its battery. Generation of the required current and voltage in the main unit are apparent from the abovementioned disclosure.

Thus, the present invention discloses an universal battery charger that provides charging a battery of a mobile phone connected to the charger in an optimal for this battery regime. The optimal regime is achieved by the fact that charging parameters required for the particular type of the battery, are uniquely set by the corresponding adapter, through which the connection of this mobile phone to IUCD is made.

Intellectual UCD according to the present invention provides a possibility of charging several phones (or abovementioned apparatuses) of one or different models simultaneously, whereas each adapter and therefore the phone (or abovementioned apparatus) are supplied with signals with parameters which are optimal for charging namely this particular connected battery, which allows to extent the life duration of the battery and provides additional convenience for users of the mobile phones and the mentioned apparatuses.

CLAIMS

1. Intellectual universal charging device, comprising

a main unit for charging at least one battery installed in a mobile telephone or other apparatus supplied by a battery, wherein each mobile telephone or said apparatus with the battery installed in it is connected to the main unit via an adapter corresponding to this mobile telephone or said apparatus, characterized in that:

each adapter forms and transfers to the main unit an information signal corresponding to voltage and current required for charging the battery of the mobile telephone or said apparatus connected to this adapter and the main unit comprises

at least one means (1a) for receiving said information signal and forming a control signal in response to this information signal,

at least one means (5) for receiving the control signal from the means (1a), forming voltage and current required for charging the battery of connected the mobile telephone or said apparatus, and for transmitting the formed voltage and current via the corresponding adapter to the mobile telephone or said apparatus connected to this adapter.

2. The device of claim 1, characterized in that said apparatus is selected from a group comprising a portable computer, video camera, camera, domestic electrical appliance, toy, etc.

3. The device of claim 1, characterized in that the main unit is connected to an external power source which is a domestic electric power supply, a power supply of a transport vehicle, a converter of alternate current into direct current, accumulator or a battery, etc.

4. The device of claim 1, characterized in that the adapter for connection to the main unit has information pins and power pins.

5. The device of claim 1, characterized in that the main unit comprises information and power pins for connection to at least one adapter.

6. The device of claim 5, characterized in that the main unit provides at the power pins for connection to the adapter such parameters which enable each adapter to form an information signal on a model of a mobile telephone or said apparatus connected to this adapter.

7. The device of a claim 1, characterized in that the main unit comprises light

indication which shows presence of a power from the external power source and light indication which shows charging process state in each channel.

8. The device of claim 1, characterized in that each adapter comprises a light indication showing the charging process state.

9. The device of claim 1, characterized in that the means (1a) comprises a microcontroller.

10. The device of claim 1, characterized in that the adapter comprises a read only memory storing a code representing an information signal corresponding to charging parameters required for the battery of the mobile telephone or other apparatus connected to this adapter.

11. The device of claim 1, characterized in that the adapter comprises a switch circuit forming an information signal corresponding to charging parameters required for the battery of the mobile telephone or other apparatus connected to this adapter.

12. The device of claim 1, characterized in that the means (1a) and (5) are integrated in order to form a channel for charging a battery inserted in the mobile telephone or said apparatus.

13. The device of claim 1, characterized in that one means (1a) is integrated with at least two means (5) in order to form several channels for charging batteries.

14. The device of claim 1, characterized in that the required voltage and current are optimal voltage and current.

15. The device of claim 13, characterized in that there is a possibility to connect one said apparatus to two or more channels of the intellectual universal charging device simultaneously via corresponding adapter in order to supply it with the power which is higher that one charging channel can provide.

16. The method of charging of at least one battery installed in a mobile telephone or other apparatus supplied with the battery by an intellectual universal charging device comprising a main unit and at least one adapter, wherein the mobile telephone or said apparatus with installed in it the battery is connected to the main unit via an adapter corresponding to this mobile telephone or said apparatus, comprising the following steps:

- providing to the output joint of the main unit a signal on parameters necessary for supplying power to the adapter for enabling each adapter to form and transmit to the

main unit an information signal corresponding to parameters required for charging the battery of the mobile telephone or said apparatus connected to this adapter;

- receiving the information signal formed by the adapter in the main unit,

- forming in the main unit, in response to the received information signal, the required voltage and current for charging the battery of the mobile telephone or said apparatus connected to this adapter, and

- supplying the formed voltage and current via the corresponding adapter to the connected mobile telephone or said apparatus for charging its battery.

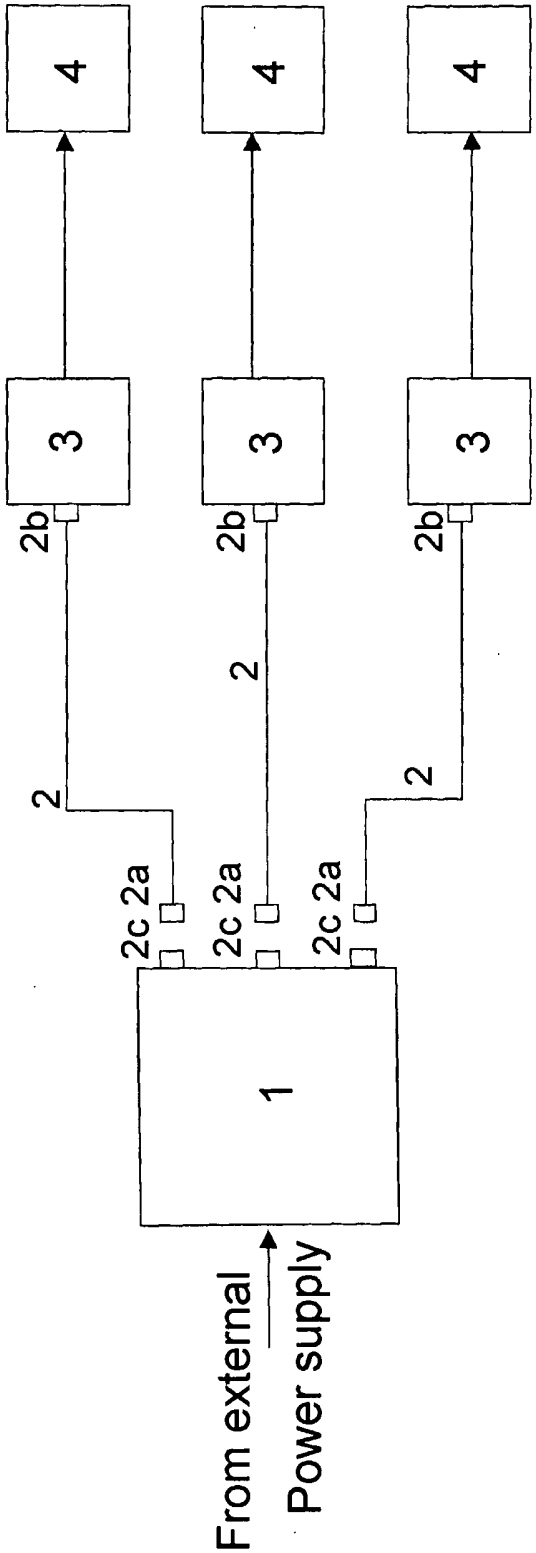

4
4
4
3
3
3
2b
2b
2b
2
2
2
2c 2a
2c 2a
2c 2a
1
From external
Power supply

Fig. 1

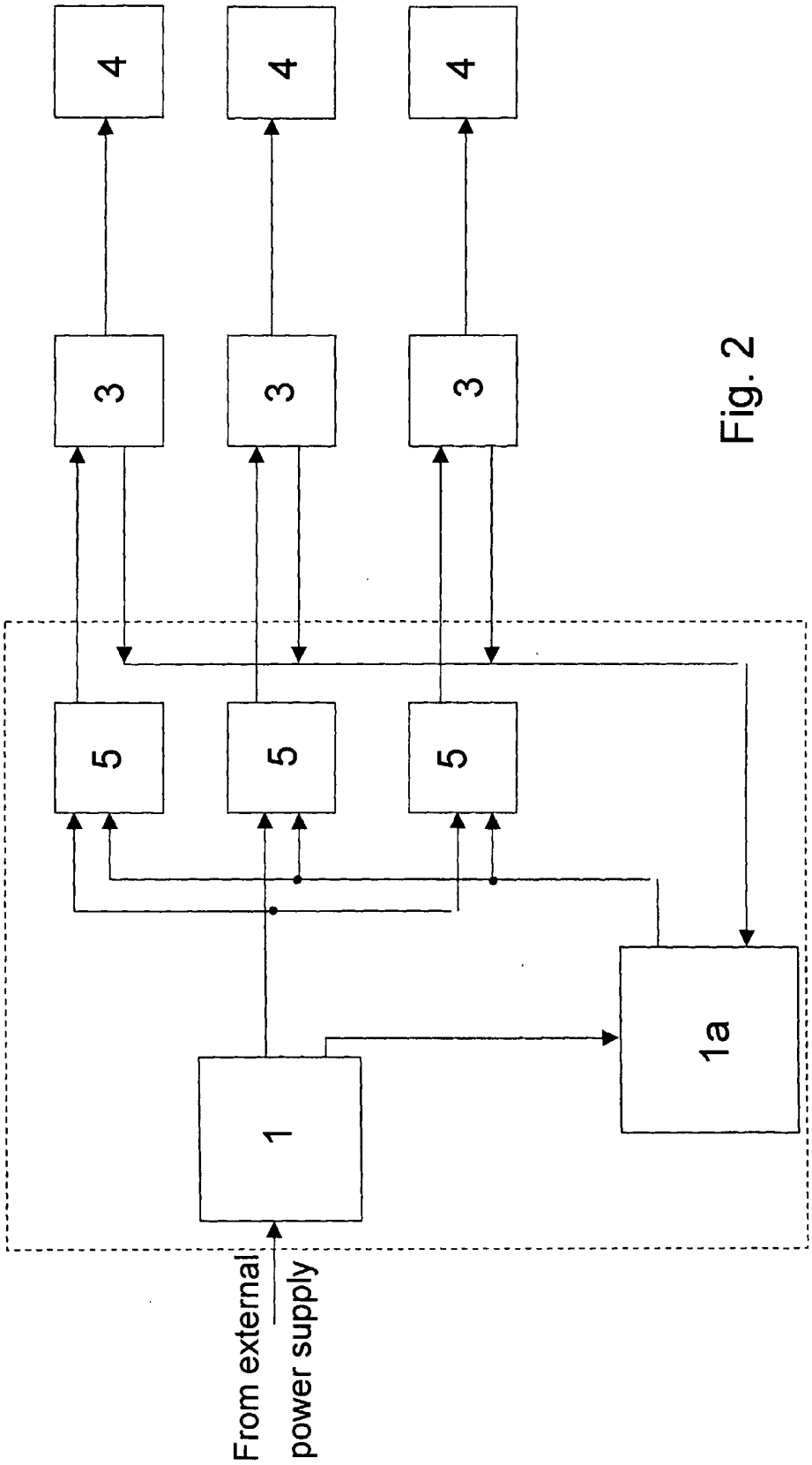


Fig. 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/RU 2005/000010

A. CLASSIFICATION OF SUBJECT MATTER
H04M 1/73, H01M 10/46
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H02J 7/00, 7/02, H01M 10/00, 10/42, 10/46, H04B 7/24, 7/26, H04M 1/00, 1/02, G06F 13/00, H04H 1/73

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched:

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X Y	US 6291965 B1 (SONY CORPORATION) 18.09.2001, fig. 13, col. 1, 9-13	1-6, 11-12, 14, 16 7-10, 13, 15
Y	JP 2004336951 (SANYO ELECTRIC CO) 25.11.2004, abstract, drawing	13, 15
Y	JP 10341273 (NIPPON ELECTRIC CO) 22.12.1998, abstract, drawing	7, 8
Y	JP 10174300 (HEWLETT PACKARD CO) 26.06.1998, abstract,	9
Y	US 5870615 (INTEL CORPORATION) 09.02.1999, abstract,	10

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document with may throw doubts on priori claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the documentis taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search report	Date of mailing of the international search report
14 September 2005 (14.09.2005)	06 October 2005 (06.10.2005)

Name and mailing address of the ISA/	Authorized officer
	G. Tarakanova
Facsimile No.	Telephone No.