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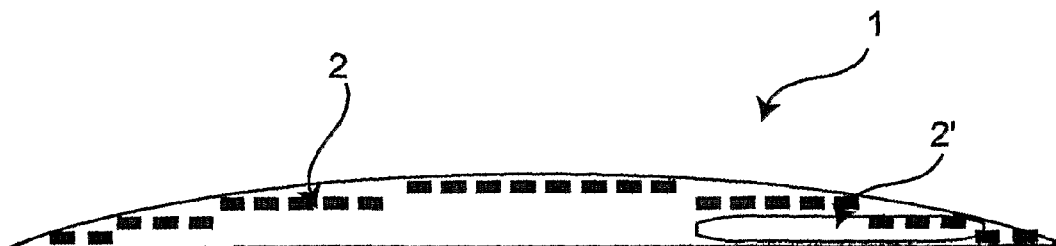
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(54) Title: IMPROVED IDENTIFICATION SYSTEM



(57) Abstract: The present invention relates to an improved identification system, characterised in that it comprises at least a detection device (1) suitable to be placed in correspondence of an access gate or passage to a controlled circumscribed space, said at least one detection device (1) comprising a plurality of antennas (3), suitable to interact with one or more passing identification radio devices placed close to said antennas, a plurality of switch means (2) distributed on a surface, suitable to generate a signal if a threshold pressure is passed, and control and processing means (2', 4, 8, 9), connected with said switch means (2) and with said plurality of antennas (3) by connection means (7, 6); said one or more switch means (2) activating after the passage on said at least one detection device of a living being and/or of an object, said control and processing means (2', 4, 8, 9) individuating his/her/its position and direction and activating antenna (3) closest to said activated switch means, so that if a radio identification device is associated with said living being and/or object, said antenna (3) detects signal and sends it to said control and processing means (2', 4, 8, 9), or, if a radio identification device is not associated with said living being and/or object, said control and processing means (2', 4, 8, 9) only detect passage of said living being and/or object. The present invention also relates to a platform (1) for detection of passage of one or more living being and/or objects. The present invention finally concerns a shoe for detection of passage of one or more living being.

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## IMPROVED IDENTIFICATION SYSTEM

The present invention relates to an improved identification system.

5 More specifically, the invention relates to a system suitable to reliably identify one or more men pass through a passage even at the same time and regardless the passing direction, each man having fixed an identification device, said system being usable also for logistic reasons, e.g. for moving goods within stores.

10 As it is well known, various methods exist for single identification for controlling and regulating access to delimited environments. Among the most diffused methods, it is possible mentioning those based on bar codes, providing a card containing optical code of a number associated with said bar code and operating by a reader provided  
15 with a reading head able decoding said code and thus identifying an man while passing through.

A second system provides using magnetic band cards, recording numeric codes on a magnetised track on which a number is coded. Said systems have been applied in the so called wiping readers  
20 wherein badge with the magnetic strip is passed inside a reader detecting magnetically stored code, thus identifying person passing through the passage in correspondence of which is placed.

Recently, system are always more diffused, based on the so called "proximity badges", permitting identifying an man that should access  
25 to restricted working areas or simply to moderate or checking access to set environments.

Said system use a transponder radio frequency identification technology. They provide integration of an antenna and of an electronic circuit within a card. It is provided the use of operative frequencies  
30 substantially different and opposed within the electromagnetic spectrum, such as 125 KHz for badges aimed to identify men or 5.8 GHz for transponders aimed to identification of vehicles passing through a passage (Dedicated Short Range Communication System).

A passive kind transponder can be stressed by a carrier radio  
35 frequency and can reply modulating said frequency with a univocal numeral code recorded inside. It is not provided with batteries, since for supplying all its inner circuits employs power provided by the magnetic induction reader.

The above systems are very safe and reliable for applications requiring a voluntary identification. Active kind transponders have been developed for those cases where it is necessary identification regardless the will of who is passing. Said transponders are characterised by the presence of an inner miniaturised electric battery and use operative frequencies and electromagnetic power greatly higher than proximity badges. This is a limitation for their applicability, since they could create biological and sanitary compatibility problems. A badge kind electronic device integrating inside not only transponder and antenna, but also an integrated slim battery, permitting operation of this device for some years, is very expensive also for its manufacturing. Furthermore, presence of an inner power supply of the chemical kind, noticeably limit its life.

Therefore, it is object of the present invention that of suggesting a system for even not voluntary identification of users passing through a passage, using low power, low frequency proximity devices.

Another object of the present invention is that said system is characterised by a low cost.

A third object of the present invention is that it is a modular system.

It is therefore specific object of the present invention an improved identification system, characterised in that it comprises at least a detection device suitable to be placed in correspondence of an access gate or passage to a controlled circumscribed space, said at least one detection device comprising a plurality of antennas, suitable to interact with one or more passing identification radio devices placed close to said antennas, a plurality of switch means distributed on a surface, suitable to generate a signal if a threshold pressure is passed, and control and processing means, connected with said switch means and with said plurality of antennas by connection means; said one or more switch means activating after the passage on said at least one detection device of a living being and/or of an object, said control and processing means individuating his/her/its position and direction and activating antenna closest to said activated switch means, so that if a radio identification device is associated with said living being and/or object, said antenna detects signal and sends it to said control and processing means, or, if a radio identification device is not associated with said living being and/or

object, said control and processing means only detect passage of said living being and/or object.

Always according to the invention, said radio identification devices can comprise a transponder with an associated code.

5 Still according to the invention, said radio identification devices can be of the passive kind or of the active kind.

Preferably, according to the invention, said at least one detection device can be comprised of a walkable platform.

10 Furthermore, according to the invention, said switch means can comprise pressure sensors.

Always according to the invention, said switch means can be arranged according to a matrix arrangement.

Advantageously, according to the invention, said antennas can be arranged according to a matrix arrangement, under said switch means.

15 Still according to the invention, said connection means can comprise a data transmission unit and/or wires.

Furthermore, according to the invention, said control and processing means can comprise a control unit for said switch means and a control unit for said antennas.

20 Always according to the invention, said control and processing means can comprise a decoding unit connected with said antennas, suitable decoding codes of said radio identification devices.

25 Preferably, according to the invention, said control and processing means can comprise a central unit and one or more peripheral units for each detection device, connected by transceiving means.

Advantageously, according to the invention, said transceiving means can comprise GSM and/or GPRS transceivers.

Still according to the invention, said central unit can comprise a database.

30 Preferably, according to the invention, said central unit can comprise a programmable processor and/or interaction means such as a button panel and/or a liquid crystal display.

35 Still according to the invention, said system can comprise one optical emitter and one optical receiver, suitable to detect passage of said one or more living being and/or objects, said emitter and said receiver can be of the infrared ray and/or ultrasound and/or microwave kind.

Always according to the invention, said system can comprise an alarm connected with said control and processing means.

Advantageously, according to the invention, said radio identification devices can be placed within an anti-accident shoe or integrated within an adhesive or within a label.

Furthermore, according to the invention, said radio identification devices can be integrated within an endo-ruminating bolus, that can be placed within stomach of an animal.

Still according to the invention, said radio identification devices can be integrated in an auricular mark, that can be placed on the ear of an animal, or integrated in a bioglass container, that can be placed under the animal skin, along with a microchip.

Advantageously, according to the invention, said radio identification devices can be placed on objects, thus permitting their radio identification, tracking and localization within a controlled space, such as a store, or on vehicles, preferably on the number plate, passing through a passage or gate.

It is further object of the present invention a platform for detection of passage of one or more living being and/or objects, suitable to be placed in correspondence of a gate or passage, characterised in that it comprises a plurality of antennas, suitable to interact with one or more radio identification devices passing close to them, a plurality of switch means distributed on a surface, suitable to generate a signal following to passing a pressure threshold; said one or more switch mean activating following a passage of a living being and/or object on which one of said radio identification devices is applied, antenna closest to said one or more activated switch means detecting code of radio identification device associated with said living being and/or object.

It is still object of the present invention a shoe for detection of one or more living being and/or object, characterised in that it comprises at least one radio identification device.

Always according to the invention, said at least one radio identification device can be integrated into the sole.

Still according to the invention, said at least a radio identification device can comprise a transponder with a code associated.

Advantageously, according to the invention, said at least a radio identification device can be of the passive kind or of the active kind.

Preferably, according to the invention, said shoe can be an anti-accident shoe.

The present invention will be now described, for illustrative but not limitative purposes, according to its preferred embodiments, with particular reference to the figures of the enclosed drawings, wherein:

figure 1 shows a first lateral section of a platform according to figure 1;

figure 2 shows a first top section view of platform according to figure 1;

figure 3 shows a second lateral section of platform of the system according to the present invention;

figure 4 shows a second top section view of platform according to figure 3;

figure 5 shows a third schematic view of platform of the system according to the present invention; and

figure 6 shows an embodiment of the system according to the present invention.

Making reference to figures 1 and 2, it is possible observing a platform 1 comprising the main detection device of the system according to the invention.

Said platform 1 is a modular, walkable platform, suitable to be placed on a passage gate. It provides a plurality of pressure sensors 2, arranged according to a matrix arrangement, to detect resting point of a passing man foot, and a sensor control unit 2', also suitable to detect passing direction, e.g. of a person walking on platform 1.

Said pressure sensors 2 can be of the kind used in the orthopaedic and physical therapic field, particularly for studying attitude of a person.

Said sensors 2 are suitable monitoring pressure exerted by passing man feet, while walking through the passage in correspondence of which the platform 1 is provided. They can also be comprised of switches interrupting a contact when they detect any pressure or in any case a pressure higher than a set threshold value.

Under sensor matrix 2 it is provided an antenna matrix 3, as it can be observed from figure 3 and 4.

Said antennas 3 are connected and fed by wires 3'. Furthermore, a control unit 4 for said antennas 3 is present inside said

platform 1, suitable in particular decoding signals from the same antennas 3.

Figure 5 shows a further schematic top view permitting observing presence of a supply circuit 5, a data transmission unit 6, and a cable 7 suitable transferring said data and providing supply power.

Said antennas 3 permit reading and identifying a passive transponder placed on the passing man.

During passage of a user, only antenna 3 closer to the pressure sensor 2 is activated. In this way, antennas 3 can have enough small dimensions and can be piloted by a very reduced power. This permits avoiding that all antennas 3 are always switched on.

Therefore, said antennas 3 switch on only for the strictly necessary time and exactly in the space suitable identifying man passing in that moment, thus minimising problems due to electromagnetic impact on environment and power consumption.

If a shoe exerts a pressure on platform 1 does not correspond to a response by transponder, an alarm (not shown in the figure) will permit to the control personnel intervening so as to stop the unidentified person.

Figure 6 shows a complete system according to the present invention. It is possible observing platform 1 and a control and processing central unit 8. Platform 1 is connected by wire 7 with a local control unit 9, provided with:

- a touch on screen 9' display;
- a button panel 9"; and
- a transceiver for sending data to the control and processing central unit 8, the antenna 9''' of which is shown.

Finally, said central unit 8 comprises a database 10, containing information relevant to code of recorded transponders.

Said central unit 8 comprises a programmable integrated processor (not shown in the figure) interfacing, by local unit 9 and sensor control unit 2', controls all pressure sensors 2, and provides average coordinate of point in which a pressure has been exerted by a foot with respect to reference system integral with platform 1, and direction and verso of the passing person.

This information is confirmed by following steps and by detections of transponder integral with the person.

Central unit 8 or local unit 9 implement a software suitable individuating antenna 3 with the highest probability of reading transponder, since it is closer, but also of activating available antenna 3 in case, e.g., of another passing person, e.g. exiting.

5           Thus, assignment of reading antennas 3 is dynamic and it is discriminated by a procedure deciding, after having received information from pressure sensors 2, which is the antenna 3 to be activated.

Obviously, in case the user passing on platform 1 is not provided with a transponder, said system only detects his/her passage.

10           Platform 1 is a modular platform, thus permitting managing maximum number of persons that can cross it at the same time and managing a plurality of passages to be checked.

System according to the invention can also provide devices suitable to prevent a man can pass said platform 1. Said devices (not shown in the figures) are comprised of an optical system (e.g. infrared ray emitter and receiver) provided at a sufficient height, permitting obtaining a redundant passage signal even in case of an aerial passage by an man attempting passing the passage without touching the platform 1. in case said optical system detects a passage not confirmed by platform 1 pressure sensors 2, an alarm (not shown in the figures) is activated.

20           System according to the present invention can be also interfaced with traditional badge readers.

An applicative example of the system according to the invention is the case in which said transponder is for example installed in the anti-accident shoe user by a worker. While said worker is entering an industrial building or in a courtyard, passing above said platform 1, pressure sensor 2 and sensor control unit 2' detect his/her passage. System, after central unit 8 by data transmission unit has processed the data, activates matrix antenna 3 corresponding to activated pressure sensor(s) 2 closest to the same sensor(s).

30           Said antenna 3 detects transponder and antenna control unit decodes feedback signal. Transmission unit 6 sends detected data to local unit 9, sending the same by transceiver to central unit 8, so as to identify worker corresponding to detected transponder, by comparison of codes with those stored within database 10.

35           Taking now for example into consideration a cruise boat, needing regulating entrance and identifying passengers coming aboard,



identificative transponder could be simply an adhesive or a label applied on a shoe or at the ankle.

5 By the system described, it is possible remarkably easing entrance and recognition and control phases for passenger coming aboard, thus permitting a quick exit of persons through entrance passages or gates. This permits avoiding or limiting very long queues.

Another applicative example of the system according to the invention is that of identification and control of animals, particularly small sized animals, such as ovines, goats, pigs, ecc.

10 Techniques are known, restricted by ISO 11784 and ISO 11785 rules, for placing transponders or similar devices on animals. Among these techniques, it is possible mentioning:

- use of endo-ruminating bolus, consisting of ceramic capsules to be placed within the animal stomach, and particularly within rumine, with a weight of 50/75 grams;

15 - use of bioglass containers that can be placed under the animal skin (under skin transponders).

By the system according to the invention, it is possible monitoring passage of animals within an area or through a gate, thus permitting identification and detection of animal directions.

20 On the basis of the previous description, it can be observed that basic feature of the present invention is possibility of automatically and dynamically identifying passing living beings, even if in a group, regardless movement direction.

25 An advantage of the invention is the fact that it can be used for safety reasons, e.g. for detection of persons within buildings after a fire or another kind of calamity.

A second advantage of the invention is that of permitting a real time check of all movements within large working areas.

30 A third advantage of the invention is that of permitting modularity of its components.

A further advantage of the present invention is that it permits use of passive kind transponders, characterised by a low power, low frequency, low costs and without sanitary impact on the man using it, thus maintaining a high reliability.

35 A further advantage of the invention is low power consumption, connected with reduced electromagnetic interactions.

Further possible application of the invention is in the logistic field, for radio identification, tracking and localisation of objects. For example, two possible uses in this sector are:

- 5                   - localisation of identified objects within a store;
- identification of vehicles provided with transponder, for example placed in the number plate, passing through a gate.

10                   The present invention has been described for illustrative but not limitative purposes, according to its preferred embodiments, but it is to be understood that modifications and/or changes can be introduced by those skilled in the art without departing from the relevant scope as defined in the enclosed claims.

## CLAIMS

1. Improved identification system, characterised in that it comprises at least a detection device suitable to be placed in correspondence of an access gate or passage to a controlled circumscribed space, said at least one detection device comprising a plurality of antennas, suitable to interact with one or more passing identification radio devices placed close to said antennas, a plurality of switch means distributed on a surface, suitable to generate a signal if a threshold pressure is passed, and control and processing means, connected with said switch means and with said plurality of antennas by connection means; said one or more switch means activating after the passage on said at least one detection device of a living being and/or of an object, said control and processing means individuating his/her/its position and direction and activating antenna closest to said activated switch means, so that if a radio identification device is associated with said living being and/or object, said antenna detects signal and sends it to said control and processing means, or, if a radio identification device is not associated with said living being and/or object, said control and processing means only detect passage of said living being and/or object.
2. System according to claim 1, characterised in that said radio identification devices comprise a transponder with an associated code.
3. System according to one of the preceding claims, characterised in that said radio identification devices are of the passive kind.
4. System according to one of the preceding claims 1 or 2, characterised in that said radio identification devices are of the active kind.
5. System according to one of the preceding claims, characterised in that said at least one detection device is comprised of a walkable platform.
6. System according to one of the preceding claims, characterised in that said switch means comprise pressure sensors.
7. System according to one of the preceding claims, characterised in that said switch means are arranged according to a matrix arrangement.
8. System according to one of the preceding claims, characterised in that said antennas are arranged according to a matrix arrangement, under said switch means.

9. System according to one of the preceding claims, characterised in that said connection means comprise a data transmission unit and/or wires.

5       10. System according to one of the preceding claims, characterised in that said control and processing means comprise a control unit for said switch means.

11. System according to one of the preceding claims, characterised in that said control and processing means comprise a control unit for said antennas.

10       12. System according to one of the preceding claims, characterised in that said control and processing means comprise a decoding unit connected with said antennas, suitable decoding codes of said radio identification devices.

15       13. System according to one of the preceding claims, characterised in that said control and processing means comprise a central unit and one or more peripheral units for each detection device, connected by transceiving means.

14. System according to claim 13, characterised in that said transceiving means comprise GSM and/or GPRS transceivers.

20       15. System according to one of the preceding claims 13 or 14, characterised in that said central unit comprises a database.

16. System according to one of the preceding claims 13 - 15, characterised in that said central unit comprise a programmable processor.

25       17. System according to one of the preceding claims 13 - 15, characterised in that said one or more peripheral units comprise interaction means such as a button panel and/or a liquid crystal display.

30       18. System according to one of the preceding claims, characterised in that said system comprises one optical emitter and one optical receiver, suitable to detect passage of said one or more living being and/or objects.

19. System according to claim 17, characterised in that said emitter and said receiver are of the infrared ray and/or ultrasound and/or microwave kind.

35       20. System according to one of the preceding claims, characterised in that said system comprise an alarm connected with said control and processing means.

21. System according to one of the preceding claims, characterised in that said radio identification devices are placed within a shoe.

5 22. System according to one of the preceding claims, characterised in that said radio identification devices are integrated within an adhesive or within a label.

23. System according to one of the preceding claims 1 - 20, characterised in that said radio identification devices are integrated within an endo-ruminating bolus that can be placed within stomach of an animal.

10 24. System according to one of the preceding claims 1 - 20, characterised in that said radio identification devices are integrated in an auricular mark that can be placed on an animal.

15 25. System according to one of the preceding claims 1 - 20, characterised in that said radio identification devices are integrated in a bioglass container that can be placed under the animal skin, along with a microchip.

20 26. System according to one of the preceding claims 1 - 20, characterised in that said radio identification devices are placed on objects, thus permitting their radio identification, tracking and localization within a controlled space, such as a store.

27. System according to one of the preceding claims 1 - 20, characterised in that said radio identification devices are placed on vehicles, preferably on the number plate, passing through a passage or gate.

25 28. Platform for detection of passage of one or more living being and/or objects, suitable to be placed in correspondence of a gate or passage, characterised in that it comprises a plurality of antennas, suitable to interact with one or more radio identification devices passing close to them, a plurality of switch means distributed on a surface, suitable to generate a signal following to passing a pressure threshold; said one or  
30 more switch mean activating following a passage of a living being and/or object on which one of said radio identification devices is applied, antenna closest to said one or more activated switch means detecting code of radio identification device associated with said living being and/or object.

35 29. Platform according to claim 28, characterised in that said switch means comprise pressure sensors.

30. Platform according to one of the preceding claims 28 or 29, characterised in that said switch means are arranged according to a matrix arrangement.

5 31. Platform according to one of the preceding claims 28 - 30, characterised in that said antennas are arranged according to a matrix arrangement, under said switch means.

32. Platform according to one of the preceding claims 28 - 31, characterised in that it comprises decoding unit connected with said antennas, suitable decoding codes of said radio identification devices.

10 33. Platform according to one of the preceding claims 28 - 32, characterised in that it comprises a control unit for said switch means.

34. Shoe for detection of one or more living being and/or object, characterised in that it comprises at least one radio identification device.

15 35. Shoe according to claim 34, characterised in that said at least one radio identification device is integrated into the sole.

36. Shoe according to one of the preceding claims 34 or 35, characterised in that said at least a radio identification device comprises a transponder with a code associated.

20 37. Shoe according to one of the preceding claims 34 - 36, characterised in that said at least a radio identification device is of the passive kind.

38. Shoe according to one of the preceding claims 34 - 36, characterised in that said at least a radio identification device is of the active kind.

25 39. Shoe according to one of the preceding claims 34 - 37, characterised in that said shoe is an anti-accident shoe.

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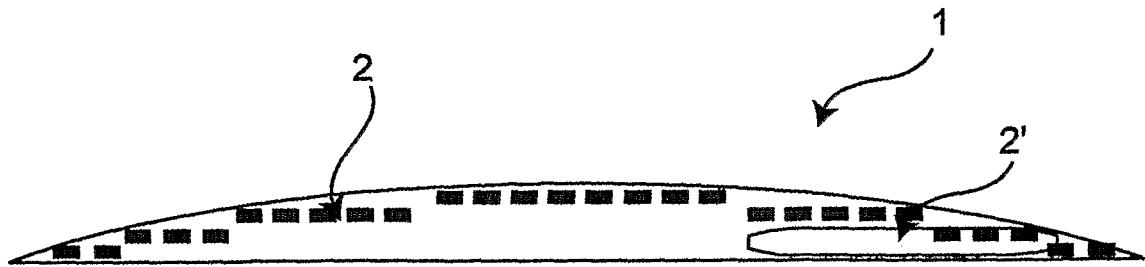


Fig. 1

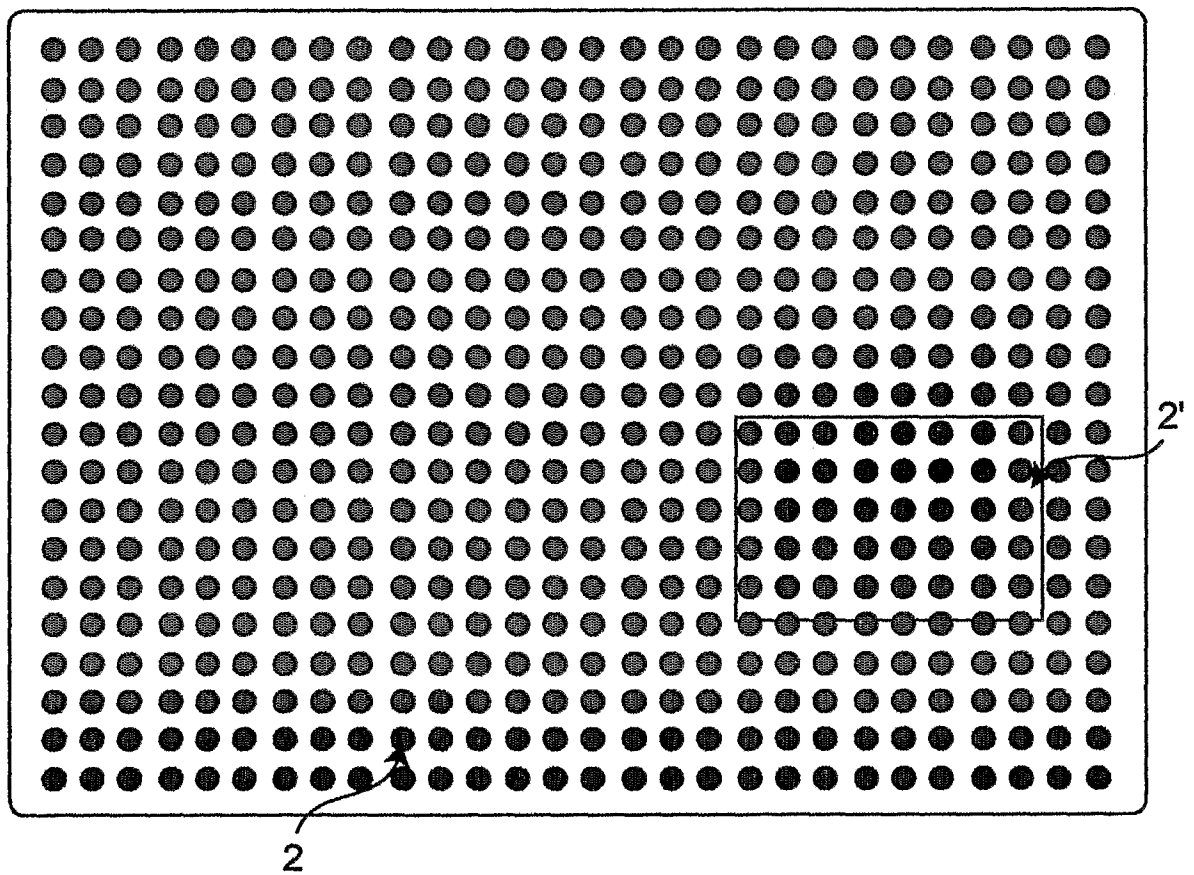


Fig. 2

2/4



Fig. 3

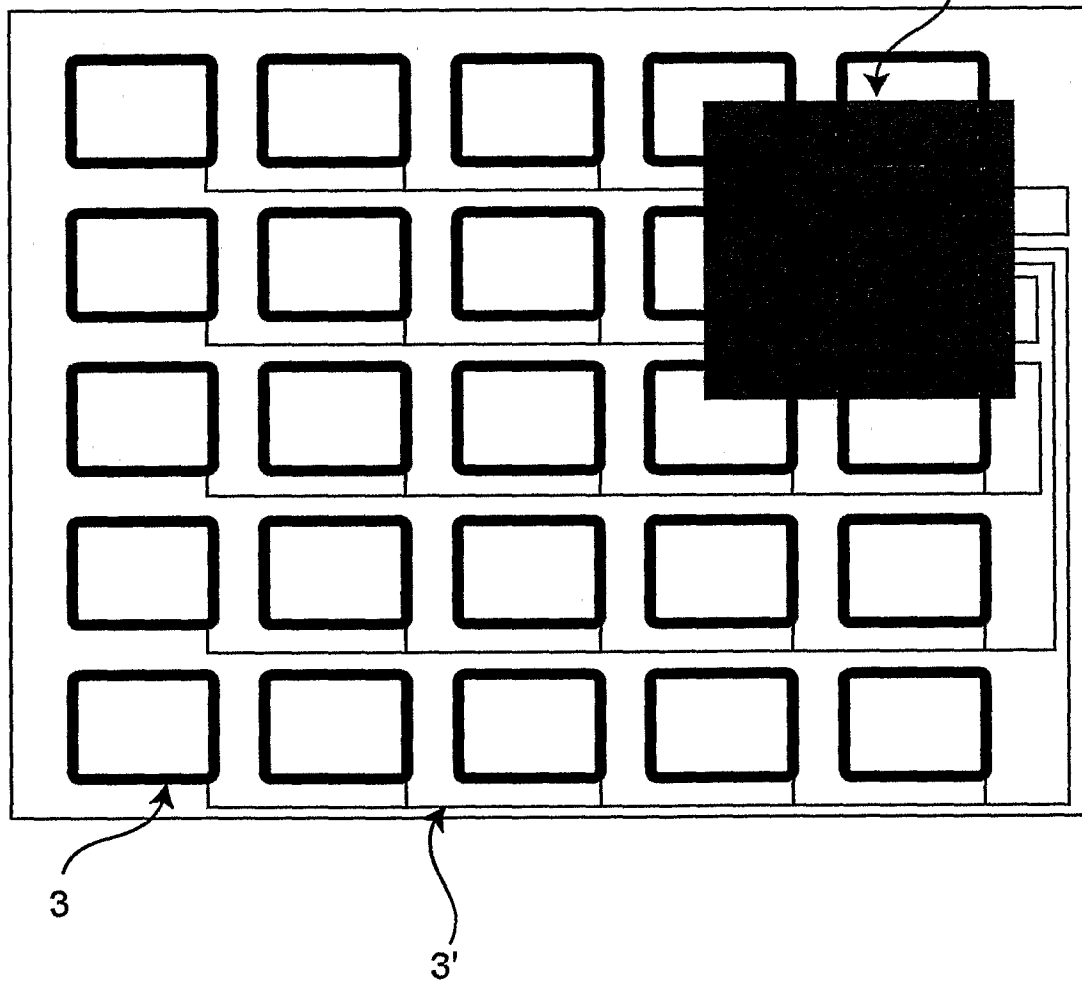


Fig. 4



3/4

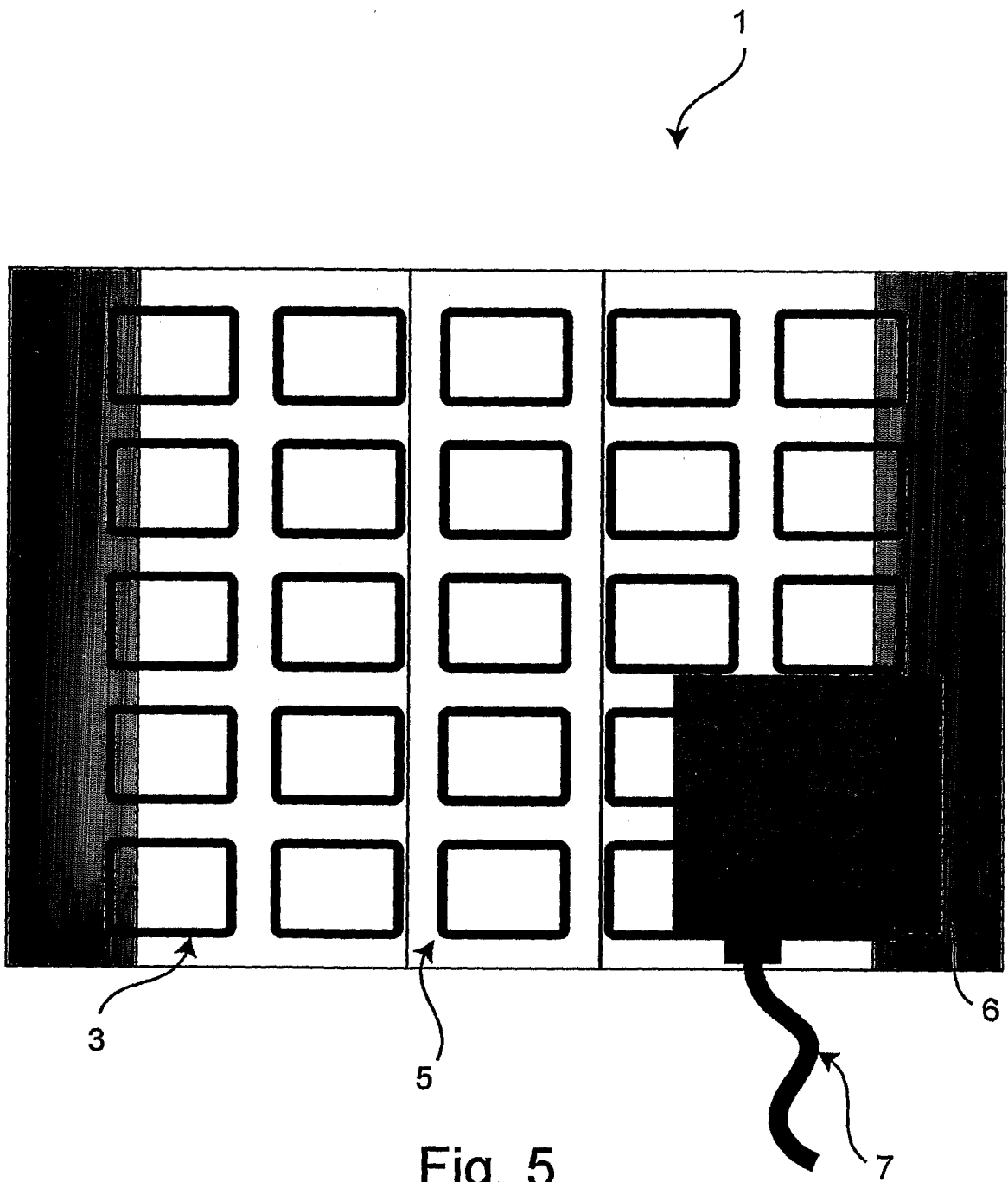


Fig. 5

4/4

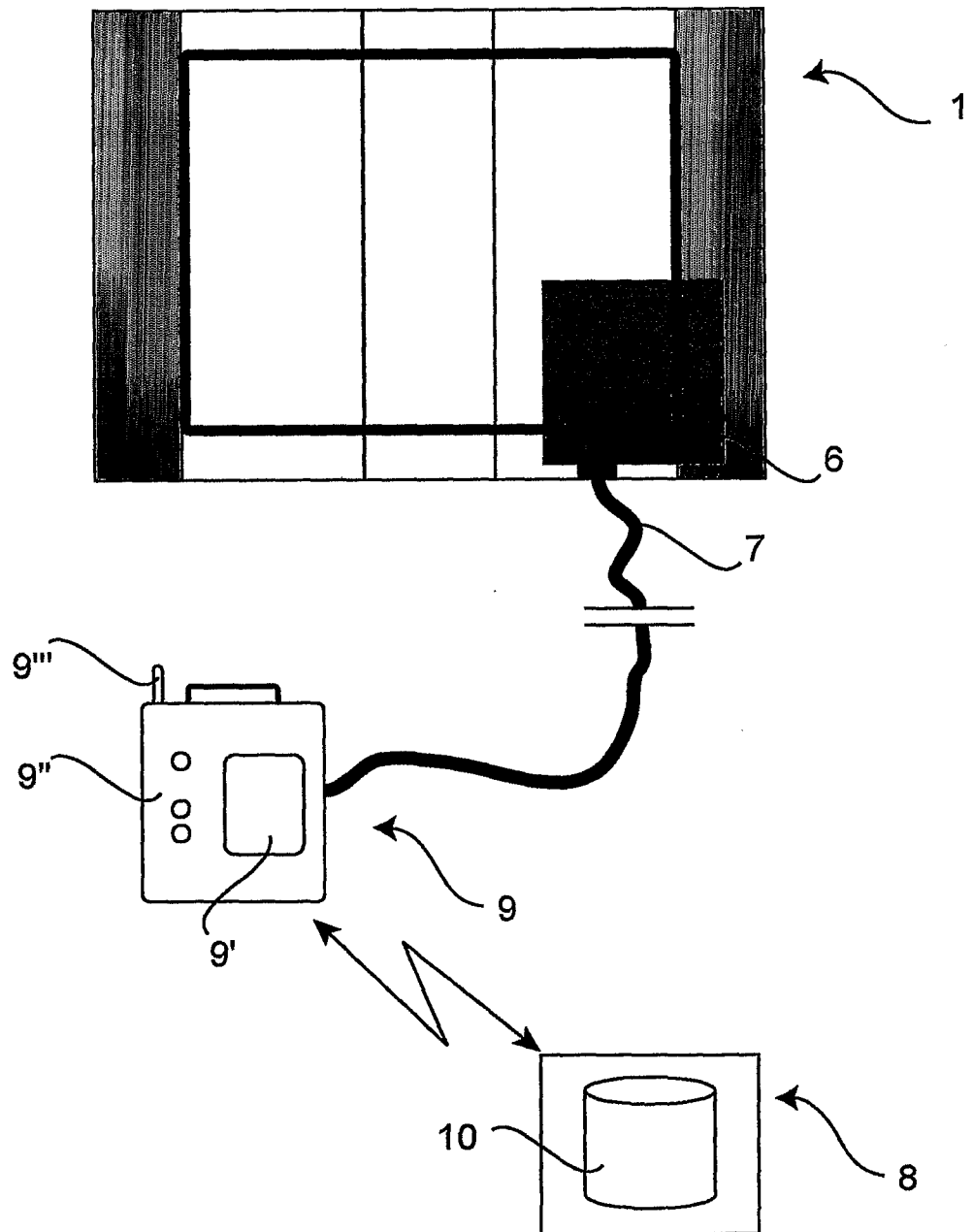


Fig. 6

## INTERNATIONAL SEARCH REPORT

International application No

PCT/IT2006/000652

A. CLASSIFICATION OF SUBJECT MATTER  
INV. G07C9/00 G06K7/08

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)

G07C G06K G08B H01H H01Q

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 practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 09 026476 A (OKI ELECTRIC IND CO LTD) 28 January 1997 (1997-01-28) abstract; figure 1	34-39
X	WO 2004/008900 A (SAFE WAY S R L [IT]; SILVESTRI GIANNI [IT]) 29 January 2004 (2004-01-29) abstract; figure 1	34-39
X	US 3 891 980 A (LEWIS JOHN ET AL) 24 June 1975 (1975-06-24) abstract; figure 1 column 3, line 15 -- line 41 column 4, line 29 - line 35	1-4, 6, 7, 9-27
	-/--	

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

## \* Special categories of cited documents :

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Date of the actual completion of the international search

28 November 2006

Date of mailing of the international search report

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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2  
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## INTERNATIONAL SEARCH REPORT

International application No

PCT/IT2006/000652

## C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004/222896 A1 (POWER MICHAEL WILLIAM [CA] ET AL POWER MICHAEL WILLIAM [CA] ET AL) 11 November 2004 (2004-11-11) abstract; figures 1,2 paragraph [0007] paragraph [0022] - paragraph [0023] -----	1,28
A	US 2003/052783 A1 (SITZMAN WILLIAM B [US]) 20 March 2003 (2003-03-20) abstract; figure 2 -----	1,28
A	WO 2004/068432 A (UBISENSE LTD [GB]; WARD ANDREW MARTIN ROBERT [GB]; WEBSTER PAUL MICHAEL) 12 August 2004 (2004-08-12) abstract; figure 1 page 5, line 30 - page 6, line 32 page 8, line 26 - line 30 page 10, line 19 - page 11, line 9 -----	1,28

# INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/IT2006/000652

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 9026476	A	28-01-1997	NONE	
WO 2004008900	A	29-01-2004	AU 2003253262 A1	09-02-2004
			EP 1524922 A1	27-04-2005
			IT FI20020138 A1	26-01-2004
			US 2006117610 A1	08-06-2006
US 3891980	A	24-06-1975	AU 472349 B2	20-05-1976
			AU 4857872 A	09-05-1974
			BE 791039 A1	07-05-1973
			CA 997445 A1	21-09-1976
			CH 577723 A5	15-07-1976
			DE 2254637 A1	10-05-1973
			ES 408555 A1	16-03-1976
			FR 2159362 A1	22-06-1973
			GB 1414119 A	19-11-1975
			HK 29581 A	10-07-1981
			HK 29681 A	10-07-1981
			IL 40760 A	15-10-1975
			IT 973404 B	10-06-1974
			JP 50047597 A	28-04-1975
			NL 7215051 A	10-05-1973
			SE 392651 B	04-04-1977
US 2004222896	A1	11-11-2004	NONE	
US 2003052783	A1	20-03-2003	WO 03026067 A1	27-03-2003
WO 2004068432	A	12-08-2004	EP 1593102 A1	09-11-2005