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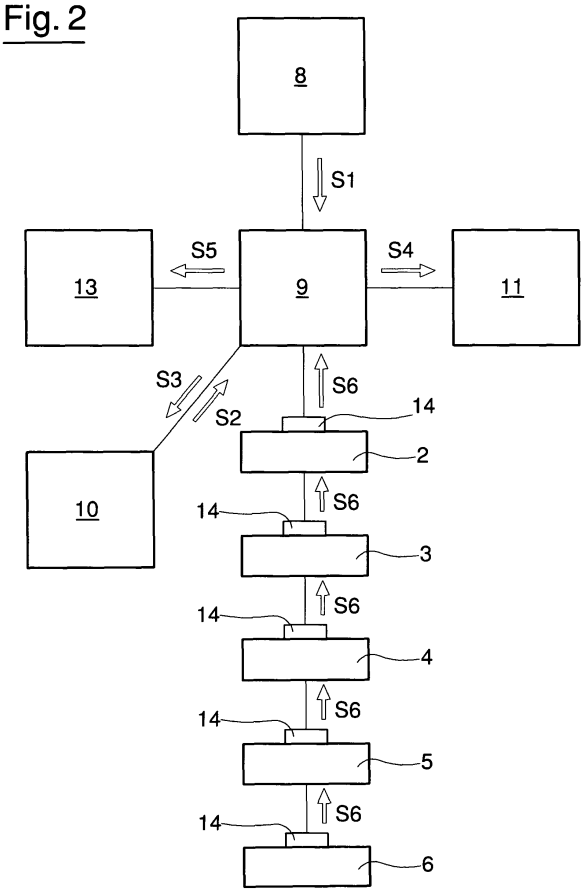
(54) **A container for medicines**

(57) A container for medicines exhibits at least a chamber for containing at least a medicine and comprises: a data collection device (8) of a medicine, which receives technical specifications and/or identification data of the medicine; a processor unit (9) which receives the technical specifications and/or identification data from the data collection device (8); a memory card (10), connected to the processor unit (9) for receiving and storing the technical specifications and/or identification data.

Fig. 2



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Description

[0001] The invention relates to a container for medicines.

[0002] It is common practice, after buying medicines, to stock the packets in drawers or on shelves or cupboards, or even in common boxes or containers, so that when the need arises the medicines can be accessed quickly.

[0003] Often, these packs of medicines are distributed around different places, according to need or availability of space.

[0004] In all of the above-mentioned cases, the accumulated packages generally tend, over time and after depositing and removing other packages, to become arranged in a disordered fashion, which often leads to the conservation of old packages which, as they cannot be seen, are forgotten. These package are thus almost certain to go past their use-by date.

[0005] Further, the non-rational arranging of the packages of medicines in different places in a house does not allow the family to make a rapid general calculation of exactly what medicines are available to it, both because some even temporary storage places are forgotten-about and because other places exist in a disordered state, which prevents a rapid and practical inventory of the medicine packages available (and not past their use-by date) to be made.

[0006] As a consequence of the above-cited problems, the palliative solution of buying new packages is used.

[0007] This solution does not really solve the problem of the over-distributed and uncontrolled stock-piling of the still-usable packages (i.e. not yet expired) which might be recycled, but rather, due to the impossibility or the difficulty of finding them, are replaced by newer packages. This creates a waste of medicines, as well as extra costs for buying new medicines for ready use.

[0008] Further, the irrational accumulation of medicines as described above does not allow due control to be kept over the use-by dates of the single medicines, as that would require a programmed control (and a manual inventory) of the single packages present in each storing-place in the home. This is an almost-impossible scenario to imagine, as it is not always easy to remember exactly where all the medicines are kept in the home.

[0009] A technical aim of the present invention is to provide a container for medicines which is free of the above-described drawbacks.

[0010] In the ambit of the technical aim, an objective of the invention is to provide a container for medicines which enables a user to keep an inventory of the medicines in a simple and practical way.

[0011] It is a further aim of the invention to provide a container for medicines which optimises the use of the medicines, in particular preventing useless wasting of the medicines themselves.

[0012] A further aim of the invention is to provide a container for medicines which enables a rational accumulation of the medicines.

[0013] The specified aims, and more besides, are substantially attained by a container for medicines in agreement with claim 1 and/or in one or more claims dependent upon claim 1.

[0014] A description of a preferred but non-exclusive embodiment will now be made of a container for medicines, in agreement with the accompanying figures of the drawings, in which:

figure 1 is a perspective exploded view of a container for medicines of the present invention;
figure 2 is a schematic representation of a logical principle of functioning of the container of figure 1.

[0015] A container for medicines in agreement with the present invention is denoted in its entirety in figure 1 by reference number 1.

[0016] The container 1 exhibits a box conformation and rationally houses a plurality of packages of medicines having different shapes and sizes.

[0017] In more detail, the container 1 comprises at least a box body 2 having at least a drawer C internally defining a chamber for containing a package of medicine, preferably a plurality of packages. In the illustrated and preferred embodiment, the container 1 comprises a plurality of the box bodies 2, 3, 4, 5 and 6, stably associable to one another and, in particular, stackable. In the embodiment of figure 1, the container 1 comprises an upper first box body 2 having six drawers C defining respective distinct and separate chambers for containing packages of medicines, a second box body 3 immediately below and having four drawers C, a third box body 4 underlying the second box body 3 and having two drawers C, a fourth box body 5 underlying the third box body 4 and having a single drawer C, and a lower fifth box body 6 also having a single drawer C. Preferably at least one of the box bodies 2, 3, 4, 5, 6 (in the illustrated embodiment, the fifth) is associated to means for cooling for generating a conservation action at low temperature in the corresponding chamber.

[0018] The box bodies 2, 3, 4, 5 and 6 preferably have a same shape and size in plan view, such that when stacked they superpose on one another, defining a single regular-shaped body. More preferably still, the box bodies 2, 3, 4, 5 and 6 are modular, i.e. made in such a way as to be coupled according to needs, or intercalated in different ways which are determined, for example, by space requirements, size of the packages to be stored and so on.

[0019] Further, each box body 2, 3, 4, 5 and 6 exhibits means for anchoring 7 acting between the box body 2, 3, 4, 5 and 6 and an adjacent box body 2, 3, 4, 5 and 6, in order stably to associate the box bodies in a predetermined configuration, in particular in a stacked configuration. Preferably, the means for anchoring 2, 3, 4, 5 and 6 are realised on horizontal surfaces of each box body 2, 3, 4, 5 and 6 and comprise, by way of example, snap-

fastening couplings, magnetic couplings or screw-couplings.

[0020] The container 1 advantageously further comprises a data collection device 8 for identifying a medicine to be inserted in the container 1, and a processor unit 9 operatively associated to a data memory card 10 for storing and processing information relating to the medicine inserted in the container 1.

[0021] In more detail, the data collection device 8 comprises a recognition device, preferably an optical bar-code reader, which detects technical specifications and/or identification data about the medicine. The technical specifications and/or identification data are generally denoted on the package of the medicine and encoded by means of writing, i.e. the bar code. In agreement with the diagram of figure 2, the data collection device 8 generates a first signal S 1 identifying the cited technical specifications and/or identification data of the medicine. The processing device 9 receives and reads the first signal S 1 and generates a corresponding second signal S2 representing the first signal S1, i.e. containing the data included in the first signal S1. The second signal S2 is sent to the memory card 10, which receives and stores the second signal S2.

[0022] In an alternative embodiment, the container 1 includes, as a variant of the data collection device 8, an alphanumeric keyboard or a vocal entry device for the operator to enter the technical specifications and/or identification data of the medicine.

[0023] In any case the recognition device, i.e. the alphanumeric keyboard, or the vocal entry device, are intended to be included in the given definition of the data collection device 8.

[0024] The present of the memory car 10 enables relevant data relating to all the medicines contained in the container 1 to be stored, and in particular the main data, stored via the first and second signals S1, S2 are the general information on the medicine (name, active ingredient, producer) and the expiry date.

[0025] The memory card 10 in turn generates a third signal S3 containing a list of information on at least a medicine present in the container 1, and in particular at least the expiry date, and sends the signal to the processing unit 9. The processor unit 9 receives the third signal S3 and compares the expiry date with the current date, calculating the difference. The processor unit 9 further generates a fourth signal S4 when the difference reaches a predetermined amount, or falls below that value, which represents an approximation to the expiry date of the medicine. The container 1 advantageously comprises an alarm device 11 for receiving the fourth signal S4 and for generating a corresponding alarm signal, preferably of the acoustic and/or visual type. In the case of a visual signal, the container 1 can comprise a display 12 which evidences an indication of the generalities of the medicine which is close to expiry, possibly accompanied by an indication of how much time remains before expiry, i.e. the size of the difference. The display 12 indication can, however, be accompanied by an acoustic signal.

[0026] The third signal S3 can in general include a list of information belonging to the technical specifications and/or identification data of one or more medicines stored in the container 1. The processor unit 9 thus receives the third signal S3 and further generates a fifth signal S5 representing the third signal S3 containing the list of information. The container 1 also comprises means for visualising 13 which receive the fifth signal S5 and visualise the data contained therein so that they can be read in real-time by a user, a doctor or a pharmacist. The means for visualising can comprise the display 12 or, preferably, a printing device on a paper support, such that the data displayed by the means for visualising 13 can also be transferred, for example by the user to the doctor or to the pharmacist.

[0027] Further, at least a box body 2, 3, 4, 5 and 6, preferably each thereof, is preferably associated to a respective presence sensor 16 of at least a medicine internally of the box body 2, 3, 4, 5 and 6 itself. The sensor 16 generates a respective sixth signal S6 identifying the presence or not of at least a medicine inside the box body 2, 3, 4, 5 and 6. The sixth signal S6 is received and read by the processor unit 9, which can thus send a corresponding signal to a special device, for example the alarm device 11, in incongruent situations which can arise, for example, when data is stored in the memory card 10 which relates to medicines when in fact there is no medicine actually housed in the chambers of the container 1.

[0028] The conveying of the sixth signal S6 from the sensor device 14 to the processor unit 9 is realised via electrical connections 15 specially included on reciprocally-engaging surfaces on the box bodies 2, 3, 4, 5 and 6 such that when the box bodies 2, 3, 4, 5 and 6 are stacked an electrical connection is generated between the sensor device 14 and the processor unit 9.

[0029] The electrical connections 15 are preferably made at or near the means for anchoring 7.

[0030] From the structural point of view, the data collection device 8 and the processing unit 9 (and preferably the memory card 10) are included within a container structure 16 of a box type, which is directly stably connectable to one of the box bodies 2, 3, 4, 5 and 6 and defines therewith a single block which realises the container 1 of the present invention. In the illustrated embodiment, the container structure 16 exhibits a shape, in plan view, which is substantially superposable on the corresponding shape of the box bodies 2, 3, 4, 5 and 6 and stably engageable to the first box body 2 which is in the highest position when the box bodies 2, 3, 4, 5 and 6 are stacked up on one another.

[0031] Also preferably contained within the container structure 16 are the alarm device 11, the display 12 and the means for visualising 13 (a paper printing device). The container structure 16 thus exhibits openings for enabling the user to read the display 12 and pull out the printed paper. In more detail, the container structure 16 exhibits a slot 17 for allowing a paper reel to exit, which

constitutes the cited printed paper. The paper-printing device preferably comprises a heat-transfer printer using a paper reel having a width of between 50 and 60 mm, preferably 57 mm. Further, the container structure 16 exhibits a window A which enables the data collection device 8 to read the bar code of a medicine which is made to slide externalwards in proximity of the window A.

[0032] The container 1 is advantageously supplied by electricity at about 220V. Further, the container 1 is transportable, and to this end exhibits means for gripping (not illustrated), preferably handles, which allow a user to get a good grip thereon.

[0033] Further, the container 1 can comprise a lower support 18 equipped with a plurality of wheels 19 for enabling practical displacement of the container 1 without raising it. The lower support 18 exhibits a plan conformation which substantially corresponds to the plan conformation of the box bodies 2, 3, 4, 5 and 6.

[0034] In a preferred embodiment, the container 1 further comprises means for selectively accessing the chambers of the container 1, which allow access to at least one of the chambers only to authorised persons. The means for selectively accessing comprise means for identifying, for example a small alphanumeric keyboard for entering a password or a key-selector, which automatically opens at least a drawer C only upon identification of the user.

[0035] In further embodiments (not illustrated), the container 1 can be equipped with integrated diagnostic devices, such as a body temperature sensor, a glycemic measuring device or a pressure measurement device. The latter two devices are preferably closed in respective external casings, or in the container structure 16, and can be reached by inserting a finger through special openings respectively predisposed in the external casing or in the container structure 16.

[0036] Further, the container 1 can comprise an emergency calling device which can call pre-recorded and selectable emergency numbers via one or more rapid shortcut buttons P.

[0037] The container 1 can advantageously be connected to a respective electric battery in order to continue functioning during brief interruptions of mains electrical supply.

[0038] The present invention attains its preset aims, obviating the drawbacks of the prior art.

[0039] The use of a container having a plurality of distinct chambers, separated from one another, enables rational storage of the medicines, in particular in respect of an active ingredient in the medicines, or a frequency of use thereof.

[0040] The possibility of archiving a plurality of data (for example name, active ingredient, use-by date) relating to the products placed in the container means being able to have, if required, a ready inventory relating to the available medicines which have not expired at any given moment; and all the aforementioned being rapidly and automatically available. This helps to eliminate erroneous estimates of what is stored, which would lead to buying new medicines believed to have been used up, thus eliminating the waste of medicines which is typical with traditional manual storage systems.

[0041] The possibility of printing out a list of data relating to the medicines at present available also enables a person to go to the doctor, or the pharmacist, with a precise list of the medicines she or he has available, and enables the doctor and/or the pharmacist to verify the actual need to prescribe and sell a new package of a medicine.

[0042] The possibility of limiting access to the container only to authorised subjects precludes, for example, access by children who might involuntarily get hold of even dangerous medicines, and thus limited access is an important aspect of prevention.

[0043] Finally, the modularity and transportability of the container of the invention afford it important logistical advantages, as it can be configured and positioned according to the various spatial or logistical needs.

Claims

1. A container for medicines exhibiting at least a chamber for containing at least a medicine, **characterised in that** it comprises:

   a data collection device (8) of a medicine, which receives technical specifications and/or identification data of the medicine and generates a first identifying signal (S1) containing the technical specifications and/or identification data of the medicine;
   a processor unit (9) which receives the first signal (S1) and generates a second signal (S2), representing the first signal (S1);
   a memory card (10) for receiving and storing the second signal (S2).

2. The container of claim 1, **characterised in that** the data collection device (8) comprises a recognition device such as for example a bar-code reader.

3. The container of claim 1, **characterised in that** the data collection device (8) comprises an alphanumeric keyboard or a vocal detection device.

4. The container of claim 1, **characterised in that** the first signal (S1) identifies an expiry date of the medicine.

5. The container of claim 4, **characterised in that** the processor unit (9):

   receives a third signal (S3) from the memory card (10) containing information on the at least a medicine, which information includes at least

the expiry date of the medicine;
calculates a difference between the expiry date and a present date, and
generates a fourth signal (S4) representing the difference, when the difference reaches a predetermined amount;
the container (1) further comprising an alarm device (11) which receives the fourth signal (S4) and generates a corresponding alarm signal.

6. The container of one or more of the preceding claims, **characterised in that** the processor unit (9) receives a third signal (S3) from the memory card (10), the third signal (S3) containing a list of technical specifications and/or identification data of at least a medicine, the processor unit (9) generating, following a command given by an operator, a fifth signal (S5) identifying the third signal (S3), the container (1) further comprising means for visualising (13) for giving a real-time visualisation of the list of technical specifications and/or identification data.

7. The container of claim 6, **characterised in that** the means for visualising (13) comprise a paper-printing device.

8. The container of one or more of the preceding claims, **characterised in that** it comprises at least a box body (2, 3, 4, 5 and 6) exhibiting a plurality of chambers which are separated from one another.

9. The container of one or more of the preceding claims, **characterised in that** it comprises a plurality of modular box bodies (2, 3, 4, 5 and 6) exhibiting means for anchoring (7) for enabling a stable reciprocal coupling between the box bodies (2, 3, 4, 5 and 6).

10. The container of one or more of the preceding claims, **characterised in that** the data collection device (8) and the processor unit (9) are included in a container structure (16) which is directly connectable to one of the box bodies (2, 3, 4, 5 and 6).

11. The container of claim 9, **characterised in that** the box bodies (2, 3, 4, 5 and 6) comprise respective presence sensors (14) of at least a medicine in each box body (2, 3, 4, 5 and 6), each sensor (14) generating a respective sixth signal (S6) identifying presence of at least a medicine in the respective box body (2, 3, 4, 5 and 6), the box bodies (2, 3, 4, 5 and 6) exhibiting electrical connections (15) which transmit the sixth signals (S6) to the processor unit (9).

12. The container of claim 9, **characterised in that** at least one of the box bodies (2, 3, 4, 5 and 6) is associated to means for cooling.

13. The container of one or more of the preceding claims, **characterised in that** it is equipped with means for gripping on the container (1) for enabling the container (1) to be moved.

14. The container of one or more of the preceding claims, **characterised in that** it comprises a plurality of drawers (C), each of which defines a respective housing chamber of at least a medicine.

15. The container of one or more of the preceding claims, **characterised in that** it comprises a selective access device, destined to prevent an access to at least a chamber of the container by a non-authorised person.

Fig. 1

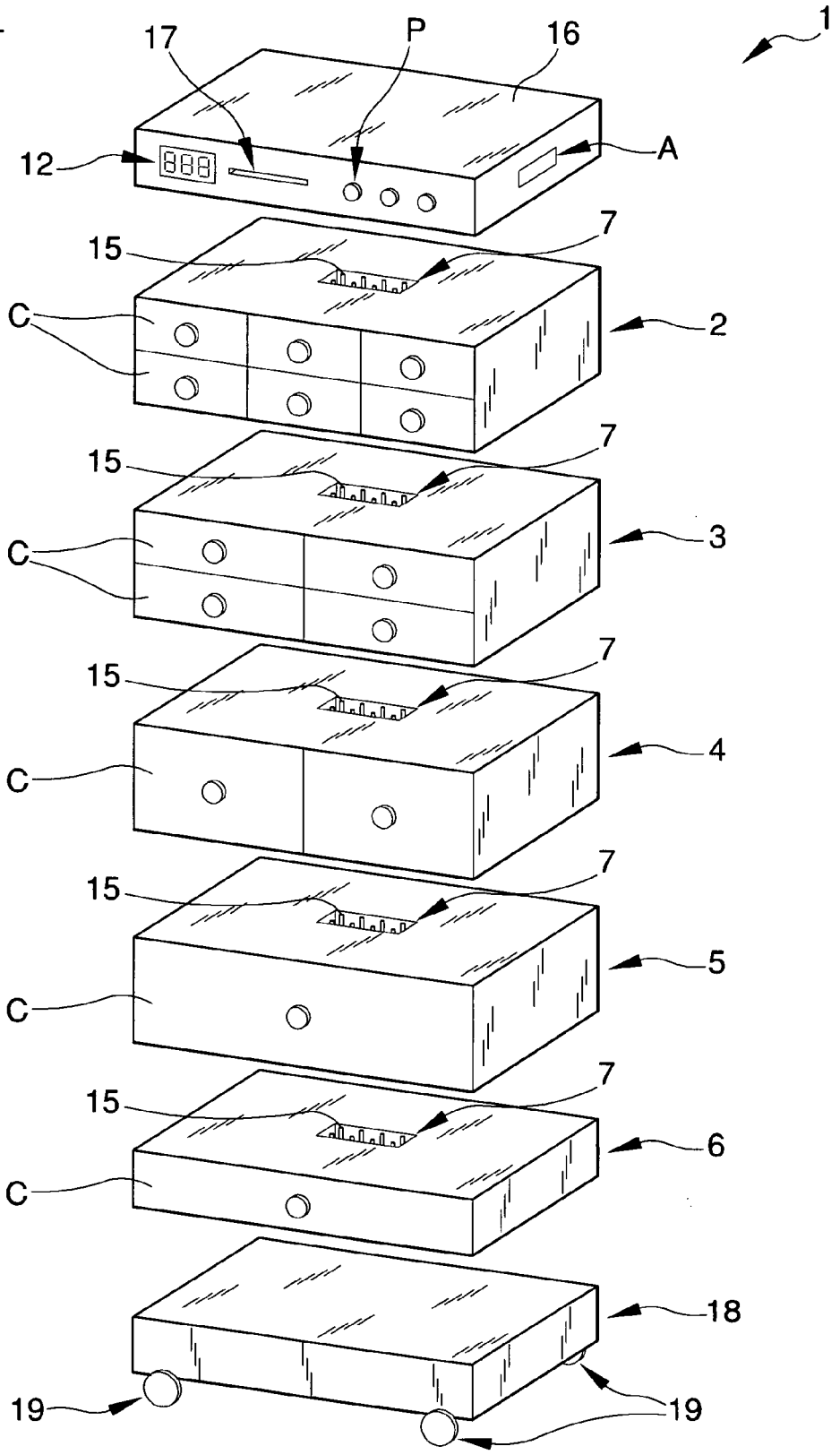
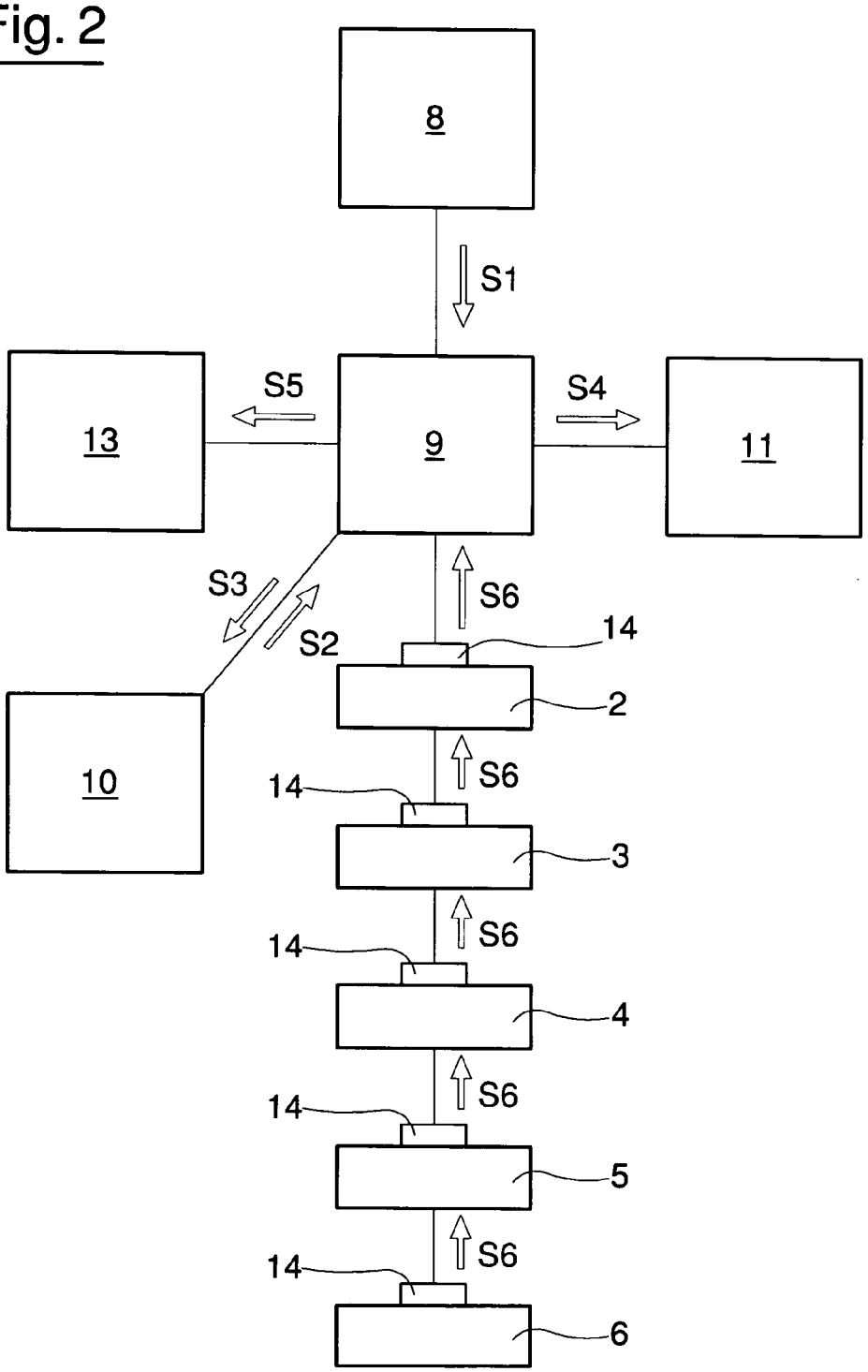


Fig. 2



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EUROPEAN SEARCH REPORT

Application Number
EP 08 00 9239

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 103 37 415 A1 (SIEMENS AG [DE]) 10 March 2005 (2005-03-10) * abstract * * paragraph [0004] * * paragraph [0014] * * paragraph [0022] *	1-15	INV. G07F11/62 G07F17/12
X	EP 1 241 617 A (YUYAMA MFG CO LTD [JP]) 18 September 2002 (2002-09-18) * abstract * * paragraphs [0007], [0005], [0015] *	1-15	
A	WO 2004/100029 A (PA KNOWLEDGE LTD; WHEWELL ROBERT [GB]; COX PAUL NICHOLAS [GB]; GILL AN) 18 November 2004 (2004-11-18) * the whole document *	1-15	
A	US 2006/266763 A1 (SVABO BECH KATRIN [IT]) 30 November 2006 (2006-11-30) * abstract * * paragraphs [0032], [0035] *	1-15	

TECHNICAL FIELDS SEARCHED (IPC)

G07F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	16 October 2008	Wolles, Bart

CATEGORY OF CITED DOCUMENTS

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16-10-2008

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 10337415 A1	10-03-2005	US 2005144037 A1	30-06-2005
EP 1241617 A	18-09-2002	CA 2374243 A1	13-09-2002
		DE 60223191 T2	14-08-2008
		JP 2002263167 A	17-09-2002
		KR 20020073252 A	23-09-2002
		TW 522010 B	01-03-2003
		US 2002130066 A1	19-09-2002
WO 2004100029 A	18-11-2004	EP 1620836 A1	01-02-2006
		JP 2006525574 T	09-11-2006
		US 2006255130 A1	16-11-2006
US 2006266763 A1	30-11-2006	NONE	

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