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(54) DRAWER AND SAFETY SYSTEM FOR CASH REGISTERS

(57) A security drawer (9), connectable to a cash register and/or cash machine, comprises at least one partition (10) for housing cash, at least one conduit (12), arranged at the partition (10) so as to release a staining fluid and stain the contents thereof, a primary tank (14) which contains the staining fluid, and an electronic control unit (16), suitable for triggering the dispensing of the staining fluid from the primary tank (14) to the at least one conduit (12).

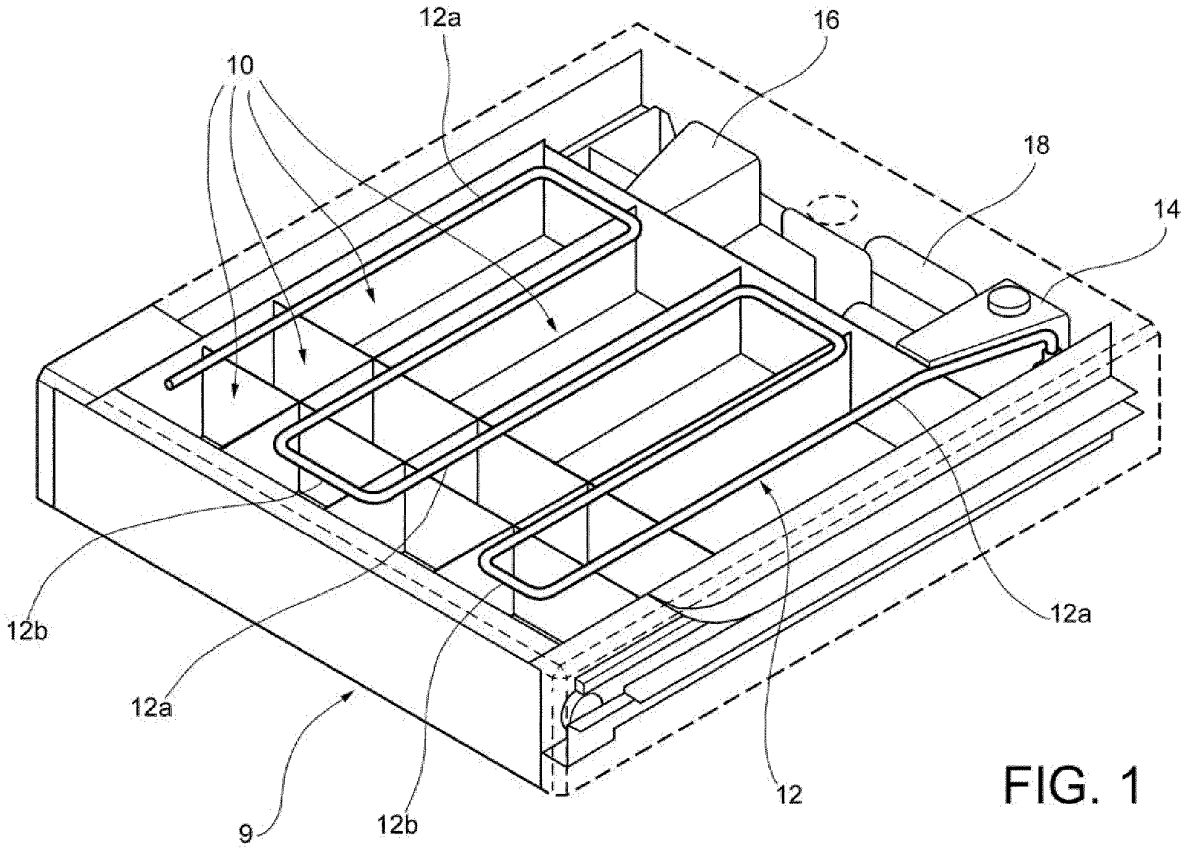

FIG. 1

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Description

Technical field

[0001] The present invention generally relates to the field of security devices; in particular, the invention relates to a security drawer and system, in particular for cash registers.

Summary of the invention

[0002] Security systems are known, traditionally associated with safes and automatic counters for withdrawing cash. These systems are equipped with devices that, in case of attempted burglary, cause the release of a staining substance, with which the valuables stored are indelibly stained.

[0003] However, known security systems cannot be used in a wide range of applications, including cash registers and the like, which are extremely common in small businesses, supermarkets, etc.

[0004] In the event of robbery, in fact, the compartments within which the valuables in these cash registers are kept are not duly protected, as there are no systems available that trigger the release of a staining agent and can intervene automatically if necessary.

[0005] This limitation, understandably, is detrimental to safety both as regards the valuable guarded and the safety of the operator.

[0006] An object of the present invention is to overcome the aforementioned drawbacks.

[0007] To obtain this result, a money holder and change giver security drawer for cash register and/or cash machine is provided with a circuit comprising one or more conduits, connected to a tank suitable for containing a staining fluid. The conduit is configured so as to be able to distribute such a staining fluid on the partitions into which the internal volume of the drawer is divided, so as to stain any valuables kept in there.

[0008] Dispensing is managed by means of an electronic control unit which supplies an impulse to the tank so that it is placed in fluid connection with the conduit, with consequent release of the staining agent.

[0009] Conveniently, the electronic control unit receives a command from the outside, a command which can also come independently of the operator's will, for example by recording the heart rate of the latter and detecting any anomalies, indicative of a danger perceived by the operator. For example, the operator can be provided with a cuff or chest strap which detects the heart rate thereof, so that, in the event of robbery, the anomalous course of this frequency triggers the release of the staining agent, regardless of the operator's will. This represents a strong deterrent with respect to robbery attempts since, upon release independently of the operator's will, the attacker would in any case be prevented from using the valuables kept in the security drawer.

[0010] The aforementioned and other objects and advantages are achieved, according to an aspect of the invention, by a security drawer and system having the features defined in the appended claims.

Brief description of the drawings

[0011] The functional and structural features of some preferred embodiments of a security drawer and system according to the invention will now be described. Reference will be made to the accompanying drawings, wherein:

- figure 1 is a schematic perspective view of a security drawer according to an embodiment of the present invention; and
- figure 2 is a schematic top view of the security drawer of figure 1.

Detailed description

[0012] Before explaining a plurality of embodiments of the invention in detail, it should be noted that the invention is not limited in its application to the construction details and to the configuration of the components presented in the following description or shown in the drawings. The invention is able to assume other embodiments and to be implemented or carried out practically in different ways. It should also be understood that the phraseology and terminology are for descriptive purpose and are not to be construed as limiting.

[0013] By way of example referring to figure 1, a money holder and change giver security drawer 9, suitable for being connected to a cash register and/or cash machine, comprises at least one partition 10, suitable for containing cash or other valuables. During use, that is when the security drawer 9 is connected to the cash register and/or cash machine, access to the at least one partition 10 is managed by such register and/or cash machine, according to methods well known to the man skilled in the art.

[0014] Conveniently, the security drawer 9 is configured so as to be slidably housed in a compartment associated with a cash register.

[0015] At least one conduit 12 is also present, arranged in at least part of the partition 10 and suitable for conveying and releasing a staining fluid on all or part of this partition 10 so as to stain the contents thereof, and a primary tank 14, in fluid connection with a conduit 12 and containing such a staining fluid.

[0016] The security drawer 9 also comprises an electronic control unit 16, suitable for triggering the dispensing of the staining fluid from the primary tank 14 to the at least one conduit 12.

[0017] According to a preferred embodiment, the security drawer 9 comprises a secondary tank 18 containing a pressurized gas. This secondary tank 18 is connected to the primary tank 14 by means of a solenoid valve operatively associated with the electronic control unit 16, so that, upon a command signal of the electronic control

unit 16, the solenoid valve creates a fluid communication between the primary tank 14 and the secondary tank 18, so that the staining fluid contained in the first is pushed by the pressurized gas towards the at least one conduit 12.

[0018] Conveniently, the security drawer 9 comprises a plurality of partitions 10 juxtaposed longitudinally and/or transversely.

[0019] According to a preferred embodiment, the conduit 12 comprises a plurality of primary segments 12a, arranged parallel and superimposed on at least part of the partitions 10, and a plurality of secondary segments 12b, arranged transversely with respect to these partitions 10 so as to connect two consecutive primary segments 12a, so that the conduit 12 is shaped like a coil. In this way, it is possible to distribute the staining agent on all the partitions 10 using a single conduit 12 suitably shaped.

[0020] According to an alternative not shown, the conduit 12 may comprise a manifold from which as many secondary conduits branch off as there are partitions 10, so that the primary tank 14 feeds the manifold, and from this the staining fluid is distributed in the secondary conduits, from which it can be released on the partitions 10.

[0021] According to a preferred embodiment, the electronic control unit 16 comprises receiving and processing means suitable for receiving a remote control, so as to output the staining fluid dispensing signal when this command is remotely transmitted to the electronic control unit 16. This signal may be issued by an operator, voluntarily or involuntarily (according to methods that will be better explained below in the present description).

[0022] Conveniently, the reception means are suitable for receiving the command by means of a wireless connection.

[0023] The security drawer 9 may also comprise a battery, suitable for feeding the electronic control unit 16.

[0024] A security system comprises a safety drawer 9 according to one of the embodiments described above, and further comprises detection means, suitable for detecting and transmitting to the electronic control unit 16 a signal indicative of the heart rate of an operator. In this case, the electronic control unit 16 will be configured so as to trigger the dispensing of the staining fluid when the heart rate of the operator exceeds a predetermined threshold.

[0025] This threshold may not be a single peak value, but may for example be a maximum heart rate value which, if exceeded a certain number of times in a predetermined period of time, indicates the perception of a danger by the operator. In this way, the activation of the security system is avoided even in cases where there is no real danger.

[0026] According to an embodiment not shown, the detection means are incorporated in a cuff or in a chest strap, suitable for being worn by an operator.

[0027] Various aspects and embodiments of a security drawer and system according to the invention have been described. It is understood that each embodiment may be combined with any other embodiment. The invention, moreover, is not limited to the described embodiments, but may be varied within the scope defined by the appended claims.

Claims

1. Security drawer (9), suitable for being connected to a cash register and/or cash machine, comprising:

   - at least one partition (10), suitable for containing cash;
   - at least one conduit (12), arranged in at least part of the partition (10) and suitable for conveying and releasing a staining fluid on all or part of said partition (10) so as to stain the contents thereof;
   - a primary tank (14), in fluid connection with said at least one conduit (12) and containing said staining fluid; and
   - an electronic control unit (16), suitable for triggering the dispensing of the staining fluid from the primary tank (14) to the at least one conduit (12).

2. Drawer according to claim 1, configured so as to be slidably in a compartment associated with a cash register.

3. Drawer according to claim 1 or 2, comprising a secondary tank (18) containing a pressurized gas, said secondary tank (18) being connected to the primary tank (14) by means of a solenoid valve operatively associated with the electronic control unit (16), so that, upon a command signal of the electronic control unit (16), the solenoid valve creates a fluid communication between the primary tank (14) and the secondary tank (18), so that the staining fluid contained in the first is pushed by said pressurized gas towards the at least one conduit (12).

4. Drawer according to any one of the preceding claims, comprising a plurality of partitions (10) juxtaposed longitudinally and/or transversely.

5. Drawer according to claim 4, wherein the conduit (12) comprises a plurality of primary segments (12a), arranged parallel and superimposed on at least part of the partitions (10), and a plurality of secondary segments (12b), arranged transversely with respect to said partitions (10) so as to connect two consecutive primary segments (12a), so that the conduit (12) is shaped like a coil.

6. Drawer according to any one of the preceding claims, wherein the electronic control unit (16) comprises

receiving and processing means suitable for receiving a remote control, so as to output the staining fluid dispensing signal when said command is remotely transmitted to the electronic control unit (16).

7. Drawer according to claim 6, wherein the reception means are suitable for receiving the command by means of a wireless connection.

8. Drawer according to any one of the preceding claims, comprising a battery, suitable for supplying the electronic control unit (16).

9. Security system, comprising a security drawer (9) according to one of claims 6 to 8 and further comprising detection means, suitable for detecting and transmitting to the electronic control unit (16) a signal indicating the heart rate of an operator, said electronic control unit (16) being configured so as to trigger the dispensing of the staining fluid when the heart rate of the operator exceeds a predetermined threshold.

10. System according to claim 9, wherein the detection means are incorporated in a cuff or in a chest strap, suitable for being worn by an operator.

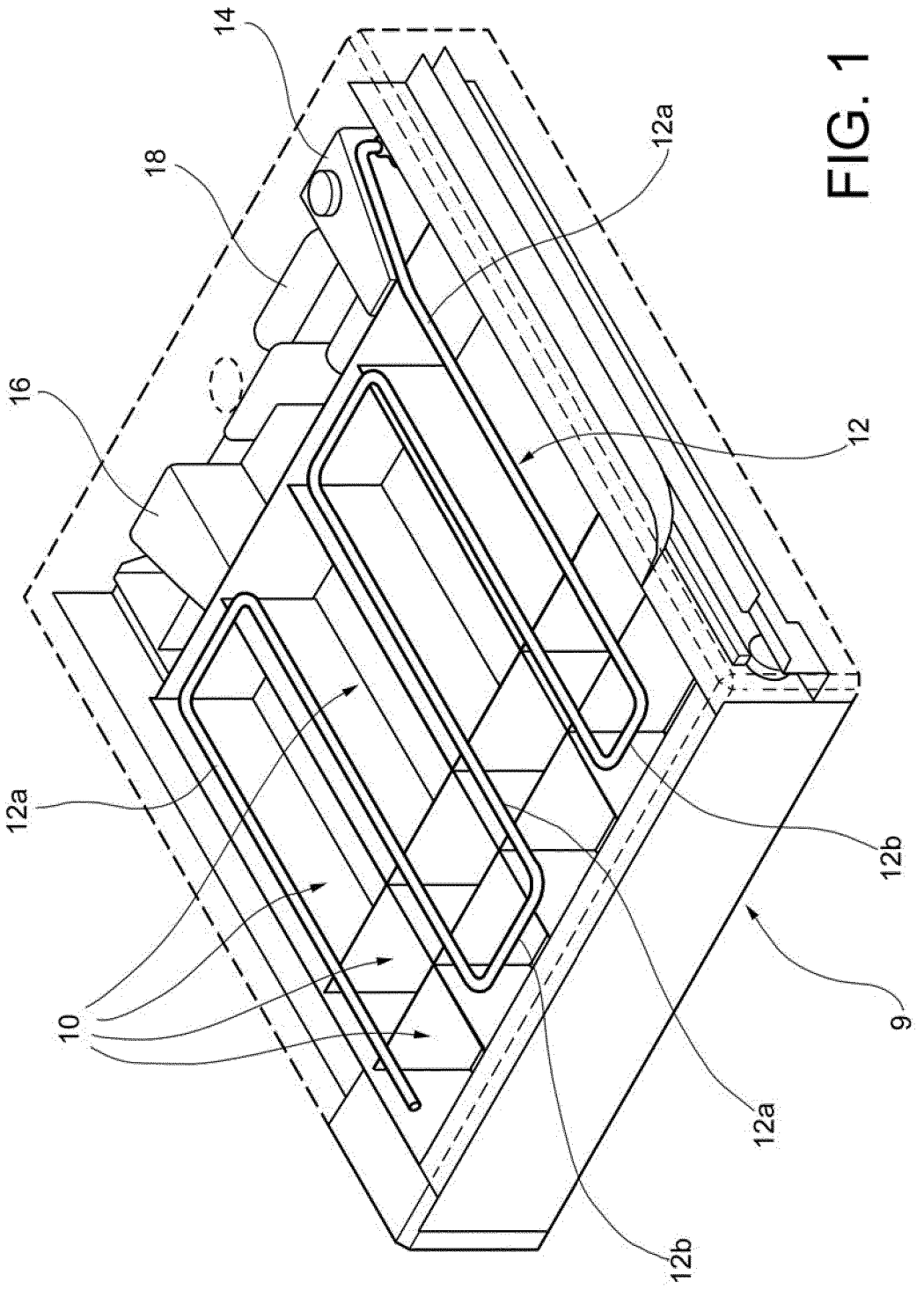

FIG. 1

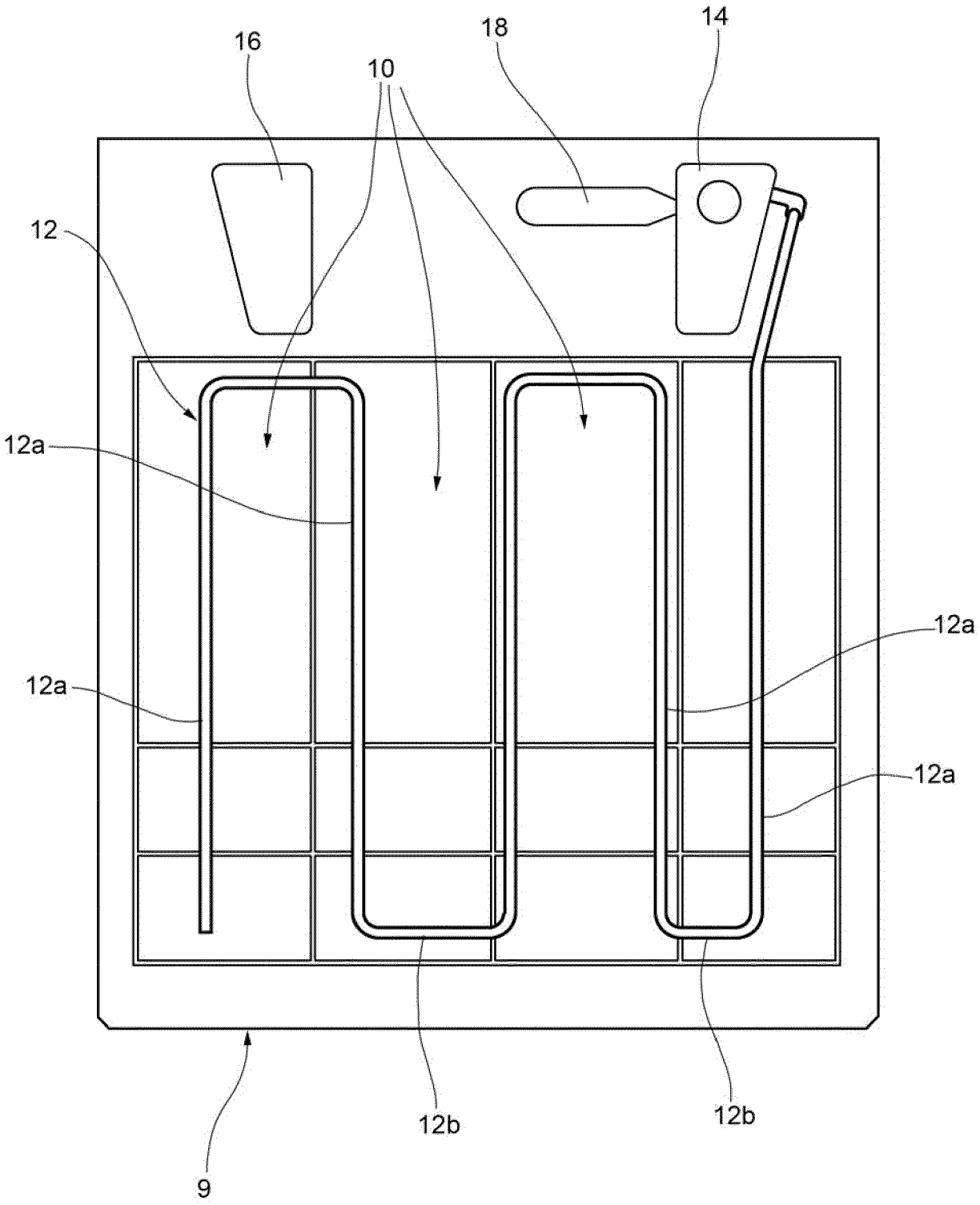

FIG. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 19 20 5276

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	1 April 2020	Guivol, Ouri

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 19 20 5276

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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