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LC Patents

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(54) **A self-defense system comprising a fog generator**

(57) The present invention is directed to a self-defense system comprising a fog generator for generating fog inside an area, an activation switch, and a fog generation control unit for operating said fog generator in response to activation of the activation switch, **characterized in that** said system further comprises means for personalizing the fog generator via internet. Additionally,

the present invention is directed to a kit of parts for a self-defense system comprising a fog generator for generating fog inside an area, an activation switch, a fog generation control unit for operating said fog generator in response to activation of the activation switch, and means for personalizing the fog generator via internet.

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a self-defense system comprising a fog generator for generating fog inside an area. Additionally, the present invention relates to a kit of parts for a self-defense system comprising a fog generator.

BACKGROUND

[0002] Apparatuses which generate fog in a monitored area have been proposed in the past as fog generating anti-theft systems for preventing theft by detecting an intruder in the monitored area or as fog generating self-defense systems for deterring criminals in robbery. In both cases, the area is filled as fast as possible with fog sufficiently thick for cut off the criminal's vision.

[0003] EP0623906 for example describes a theft proofing system wherein the fog generator can be activated either upon detection of an intruder by a detector, either by an activation switch for use in case of emergency. An alarm is generated activating a speaker system and sending a signal to a monitor device via a telephone line.

[0004] Such anti-theft or self-defense system however is complex and requires skilled technicians to install it properly, to adjust dedicated performance parameters of the system as a function of location of the fog generator or volume of the area, to set up a telephone line and to record warning call and emergency call numbers, etc. Obviously, in case some of the parameters or for example call numbers have to be changed, the technician has to come on-site.

[0005] Another general problem with conventional anti-theft or self-defense systems is that the above mentioned performance parameters and data such as call numbers are stored individually in each anti-theft system which makes it difficult both for a system manufacturer and for a system manager managing a plurality of systems in a plurality of remote locations to evaluate the performance of the different systems.

[0006] Another general problem with conventional anti-theft or self-defense systems is that, in case such system is managed via a central control unit in network connection with the fog generators, it is relatively easy for a criminal to hack the system.

[0007] Considering the above drawbacks, it is an object of the present invention to provide a self-defense system which is relatively easy to install and set up, such that even a non-experienced person can install it in his premises or house and establish a correct set of performance parameters.

[0008] It is a further object of the present invention to provide a self-defense system allowing a system manufacturer or system manager to follow-up a plurality of self-defense systems in different remote locations.

[0009] Further, it is still an object of the present inven-

tion, to provide a self-defense system with improved resistance against hacking and/or providing more security to the user.

[0010] The present invention meets the above objects by providing a fog generating self-defense system comprising means for personalizing the fog generator via internet, and additionally by providing a kit of parts for a fog generating self-defense system comprising means for personalizing the fog generator via internet.

SUMMARY OF THE INVENTION

[0011] The present invention is directed to a self-defense system comprising a fog generator for generating fog inside an area, an activation switch, and a fog generation control unit for operating said fog generator in response to activation of the activation switch, **characterized in that** said system further comprises means for personalizing the fog generator via internet.

[0012] Additionally, the present invention is directed to a kit of parts for a self-defense system comprising a fog generator for generating fog inside an area, an activation switch, a fog generation control unit for operating said fog generator in response to activation of the activation switch, and means for personalizing the fog generator via internet.

DETAILED DESCRIPTION

[0013] In a first embodiment, the present invention provides a self-defense system comprising a fog generator for generating fog inside an area, an activation switch, and a fog generation control unit for operating said fog generator in response to activation of the activation switch, **characterized in that** said system further comprises means for personalizing the fog generator via internet.

[0014] By providing means for personalizing, the user/owner is able to personalize the fog generator or generators in his premises or house on his own motion without the need to hire a skilled technician to adjust personalization data in accordance with his needs.

[0015] Personalization data for personalizing an individual fog generator may comprise a selection or a combination of user and/or owner identification data, location data (installation address), area volume data, alarm text content, alarm call content, alarm call numbers, audio alarm signal content, emergency services data and call numbers, or system reset authorization data, or may comprise system performance parameters to be established by the more advance user, such as for example the duration of a fog generation pulse.

[0016] In embodiment according to the present invention, the means for personalizing may comprise a central database for recording the personalization data. By storing these data in a central database the manufacturer or self-defense system manager has the ability to follow-up each system, or optionally to adapt certain personaliza-

tion data he is authorized to.

[0017] The personalization data may be entered in the central database by a software program to be installed on the user/owner's computer. In a particular embodiment in accordance with the present invention, the means for personalizing may comprise a web user interface for entering personalization data in the central database. Such web user interface may be an internet page accessible by entering a password, by using soft-key, dongle, card-reader, digipass, or any identification means suitable for providing secured access to a webpage.

[0018] The activation switch (also called a panic button) is connected to the fog generation control unit. Upon activation the switch, a signal is sent to the fog generation control unit which on his turn activates the fog generator(s) to fill the area with fog, to cut off the field of vision of the intruder, to deter a criminal from continuing robbery, or for avoiding further aggressive behavior against a user pushing the activation switch. The system of the invention may make it possible to arrest the intruder.

[0019] The activation switch may be any system for activating by pushing or pulling. Preferably, the activation switch comprises two adjacent buttons such that both have to be pushed to actually activate the fog generator, thereby preventing accidental or false alarm. In a particular application, such activation switch may be integrated in door opening systems, such that for example pushing the first button opens the door and that, upon noticing a threatening situation, the user has only to push additionally on the second button to activate the fog generator.

[0020] In an embodiment in accordance with the present invention, a self-defense system is provided wherein the means for personalizing comprise encrypting and transmitting means for encrypting and transmitting personalization data to the fog generation control unit and/or the fog generator. Specific data stored in the central database and required for proper functioning of the fog generation control unit and/or the fog generator may be encrypted and transmitted.

[0021] Transmission of the personalization data from the central database may be done via any suitable network, preferably via a mobile network. By using a mobile network, hackers forcing access to the self-defense system need both to hack the central database and the mobile network to gain influence in the actual performance of the activation switch, fog generation control unit or fog generator itself installed in the user/owner's premises or house.

[0022] In order to establish a mobile network between the central database and the fog generation control unit, a SIM card based phone may be implemented in the fog generation control unit. This may be advantageous in that sense that the self-defense system is additionally also making use of the mobile network provider's secured system.

[0023] Further, firewall protection of the central database will prevent hackers from forcing access to the

self-defense system via the web user interface (or other home-computer installed software).

[0024] A self-defense system in accordance with the present invention may additionally comprise an intruder detector for detecting an intrusion into a monitored area and a mode setter for setting or releasing a warning state of said monitored area, and wherein the fog generation control unit are additionally adapted for operating said fog generator in response to the detection of the intrusion.

[0025] Further, a self-defense system in accordance with the present invention comprises a report means for sending a signal to an alarm center upon activation of the fog generator(s). Such signal may be sent via any suitable network, preferably via a mobile network.

[0026] Preferably the report means is part of the fog generation control unit, the alarm center is implemented in the central database, and the signal from the report means to the alarm center is sent via the same mobile network used to transmit personalization data from the central data base to the fog generation control unit.

[0027] The alarm center may be adapted for calling a plurality of alarm call numbers, preferably simultaneously instead of sequentially, which is advantageous in terms of response time from called numbers and/or emergency services.

[0028] The self-defense system in accordance with the present invention may comprise a speaker system for announcing audio alarm text, for example "this fog is not harmful, stay calm, emergency services are on their way." The speaker system may be a part of the fog generation control unit.

[0029] In an additional embodiment in accordance with the present invention, a kit of parts for a self-defense system is provided comprising a fog generator for generating fog inside an area, an activation switch, a fog generation control unit for operating said fog generator in response to activation of the activation switch, and means for personalizing the fog generator via internet.

[0030] Such kit of parts may be intended as an easy to install self-defense system which can be set-up and personalized by a non-experienced user.

[0031] The means for personalizing the fog generator may comprise software to install on the user's computer or may be an access key providing access to a web user interface for entering personalization data. Such access key may be a password, a soft-key, dongle, card-reader, digipass, or any identification means suitable for providing secured access to a webpage.

[0032] The kit of parts may comprise report means for sending a signal to an alarm center as explained above.

[0033] The kit of parts may additionally comprise an intruder detector for detecting an intrusion into a monitored area and a mode setter for setting or releasing a warning state of said monitored area, and wherein the fog generation control unit are additionally adapted for operating said fog generator in response to the detection of the intrusion, as explained above.

[0034] Though the fog generator is installed inside the

area in the embodiments described above, it is also possible to dispose the fog generator outside the monitored area and to introduce fog to the floors or walls of the monitored area through pipes, or the like.

[0035] Further, the self-defense system of the present invention may be operated in an interlocking arrangement with alarm means installed inside or outside the area.

[0036] Fog generation may be continued after the intruder's field of vision is cut off. Therefore, the monitored area is filled excessively with fog, such that a long time is necessary before the field of vision is clear enough to arrest the intruder.

[0037] The fog generator may be any apparatus suitable for providing fog in sufficiently short time, with sufficient quality and quantity. Preferably a fog generator is used as described in EP1985963 and EP1985962 and taken up by reference.

[0038] According to an embodiment of the present invention, the generated fog may comprise an invisible marker. Such invisible marker may be any substance suitable for being mixed with the fog generating fluid, for being spread by using the fog as a carrier, for adhering to the surface of objects, bodies, clothes, etc, and having sufficient retention characteristics for being detected by known detection methods or forensic methods.

[0039] The invisible marker may comprise a nucleotide, a nucleotide sequence, a nucleic acid fragment, a nucleic acid, a sequence of nucleic acids, a DNA sequence fragment, a DNA sequence, or derivatives thereof. One or more of the nucleotides may be modified enhancing the identification or detection of the nucleotide.

[0040] The concentration of invisible marker in the fog generating marker fluid, and the concentration of nucleotide material or derivatives thereof in the invisible marker may vary depending on the duration the invisible marker needs to be detectable (e.g. 1 month, 1 year, multiple years), the expected environmental exposure, the detection method to be used, etc.

[0041] In another embodiment in accordance with the present invention, the invisible marker may comprise an UV fluorescent substance, e.g. UV ink, such that identification or detection may be possible by means of an UV lamp or other known UV detection techniques. Alternatively, also thermochromic ink may be used.

[0042] In accordance with the present invention, the fog generator uses a fog generating fluid comprising at least one glycol or at least one glycerol. Mixtures comprising a glycol and a glycerol, or two or more glycols, or two or more glycerols may be used. To optimize the quality of the fog, the fog generating mixture preferably contains approximately about 5 to 50 volume percent of water, and about 50 to about 80 volume percent of glycol. The glycol may be a mixture of about 10 to 25 volume percent of triethylene glycol, the remainder being dipropylene glycol, but other glycols and glycol mixtures may also be used. An example of a very suitable fog generating fluid comprises about 10 volume percent of water,

about 10 volume percent of triethylene glycol, and about 80 volume percent of dipropylene glycol.

5 Claims

1. A self-defense system comprising a fog generator for generating fog inside an area, an activation switch, and a fog generation control unit for operating said fog generator in response to activation of the activation switch, **characterized in that** said system further comprises means for personalizing the fog generator via internet.
2. A self-defense system according to claim 1, wherein the means for personalizing comprise a central database for recording the personalization data.
3. A self-defense system according to claim 2, wherein the means for personalizing comprise a web user interface for entering personalization data in the central database.
4. A self-defense system according to claims 2 or 3, wherein the personalization data comprise a selection or a combination of user and/or owner data, location data, area volume data, alarm text content, alarm call content, alarm call numbers, audio alarm signal content, emergency services data and call numbers, or system reset authorization data.
5. A self-defense system according to claims 1 to 3, wherein the means for personalizing comprise encrypting and transmitting means for encrypting and transmitting personalization data to the fog generator operation means and/or the fog generator.
6. A self-defense system according to claim 4, wherein transmitting occurs via a mobile network.
7. A self-defense system according to any of the above claims, additionally comprising an intruder detector for detecting an intrusion into a monitored area and a mode setter for setting or releasing a warning state of said monitored area, and wherein the fog generation control unit are additionally adapted for operating said fog generator in response to the detection of the intrusion.
8. A self-defense system according to any of the above claims, further comprising a report means for sending a signal to an alarm center.
9. A self-defense system according to claim 7, wherein the signal to said alarm center is sent over a mobile network.
10. A self-defense system according to claims 7 or 8,

wherein the alarm center is adapted for simultaneously calling a plurality of alarm call numbers.

11. A kit of parts for a self-defense system comprising a fog generator for generating fog inside an area, an activation switch, a fog generation control unit for operating said fog generator in response to activation of the activation switch, and means for personalizing the fog generator via internet. 5
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12. A kit of parts for a self-defense system according to claim 10, wherein the means for personalizing the fog generator comprises an access key providing access to a web user interface for entering personalization data. 15
13. A kit of parts for a self-defense system according to claim 11, further comprising a report means for sending a signal to an alarm center 20
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14. A kit of parts for a self-defense system according to claims 10 to 12, additionally comprising an intruder detector for detecting an intrusion into a monitored area and a mode setter for setting or releasing a warning state of said monitored area, and wherein the fog generation control unit are additionally adapted for operating said fog generator in response to the detection of the intrusion. 30

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EUROPEAN SEARCH REPORT

Application Number
EP 11 18 9984

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 14 March 2012	Examiner Fagundes-Peters, D
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 11 18 9984

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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