(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 4 560 251 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
28.05.2025 Bulletin 2025/22

(21) Application number: **23842490.7**

(22) Date of filing: **12.07.2023**

(51) International Patent Classification (IPC):
F41A 19/58 *(2006.01)* ***F42C 11/00*** *(2006.01)*
F42C 9/08 *(2006.01)* ***F42B 5/08*** *(2006.01)*
F42C 19/12 *(2006.01)*

(52) Cooperative Patent Classification (CPC):
F41A 19/58; F41C 9/08; F42B 5/08; F42C 9/08; F42C 11/00; F42C 19/12

(86) International application number:
PCT/ES2023/070446

(87) International publication number:
WO 2024/018101 (25.01.2024 Gazette 2024/04)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN

(30) Priority: **18.07.2022 ES 202231197 U**

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(54) **DEVICE FOR ACTIVATING ELECTRONIC CARTRIDGES, COMPRISING A MUZZLE-LOADING REFILL SYSTEM**

(57) Electronic cartridge actuating device with a cylindrical charge system for the activation by electric discharge of disposable electronic cartridges with different end functions, e.g. fire extinguishing cartridges, detonating cartridges without projection, chemical compound projection cartridges, etc. comprising an inner housing (1) with a charging system, a magnetic clamping system (2) at its base, terminals (3) for connection to the cartridge (10), a safety mechanism (4), a button (5) or push-activation system and an integrated battery (6).

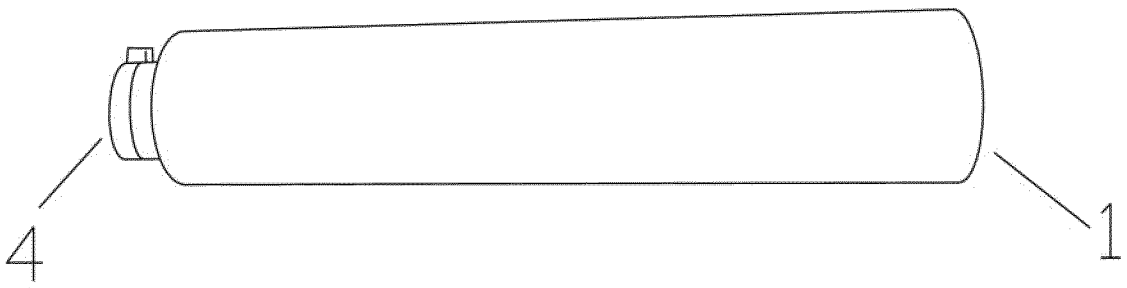

FIG. 1

EP 4 560 251 A1

Description

Object of the invention

[0001] The subject of the present report is a device for activating electronic cartridges, comprising a muzzle-loading refill system with a system for the activation by electric discharge of disposable electronic cartridges with different final functions such as fire extinguishing cartridges, detonation cartridges without projection, chemical compound projection cartridges, etc.

Background to the invention

[0002] Today, there are a multitude of cartridge-like devices that serve a variety of purposes ranging from extinguishing a fire, incapacitating an aggressor, generating a loud bang to creating an illuminated warning signal.

[0003] Most of the activators required for the use of these cartridges are made by means of hammer, spring or firing pin systems, which makes them sensitive to possible undesired activations occurring by chance. Likewise, all these devices use single-use cartridges or, in the case of interchangeable cartridges, they are based on systems of reloading by reloading and are actuated by percussion of the cartridges.

[0004] The device presented here is intended to house and activate all these types of electronic initiation cartridges in a comfortable, efficient and safe way, based on the muzzle loading system, as well as to provide the user with a simple method of replacing these cartridges once they have been used.

Description of the invention

[0005] The technical problem solved by the present invention is to provide the user with a simple, effective and safe solution for the activation of any type of electronic initiation cartridge , solving the activation manoeuvres, projection of the effect to the desired place as well as providing a quick replacement manoeuvre for the cartridges to be used. To this end, the electronic cartridge activator device with a system of reloading by auctions, the object of the present invention, is cylindrical and comprises an interior housing with a system of auctions, a magnetic fastening system at its base, terminals for connection to the cartridge, a safety mechanism, a button or push-activation system and an integrated battery.

[0006] Thanks to its design, the muzzle loading system allows easy replacement of the cartridges through the front of the inner housing by a simple pull that overcomes the force that the magnetic clamping system exerts on the cartridge to hold it in its firing location.

[0007] Likewise, the built-in battery provides the necessary power to the activator and this discharge is activated by means of the push-button or push-activation system, which allows the discharge of the material incorporated in the cartridge.

[0008] Finally, the invention incorporates a safety mechanism that protects the button from accidental actuation. This safety mechanism may be of the hinged cover type, safety ring type or any other method that prevents such accidental actuation.

Brief description of the figures

[0009] The following is a very brief description of a series of drawings which help to better understand the invention and which relate expressly to an embodiment of the invention which is presented as a non-limiting example of the invention.

FIG 1. It shows a view of the device for activating electronic cartridges, comprising a muzzle-loading refill system, object of the present invention.

FIG 2. It shows a detailed view of the button (5) of the device for activating electronic cartridges, comprising a muzzle-loading refill system, object of the present invention.

FIG 3. It shows a schematic of the insertion of the cartridge (10) in the device for activating electronic cartridges, comprising a muzzle-loading refill system; object of the present invention.

FIG 4. It shows a detail view of the cartridge (10) of the device for activating electronic cartridges, comprising a muzzle-loading refill system, object of the present invention.

Detailed description of a detailed embodiment of the invention

[0010] The attached figures show a preferred embodiment of the invention. More specifically, the device for activating electronic cartridges, comprising a muzzle-loading refill system, is cylindrical in shape and comprises an inner housing (1) with a muzzle-loading system, a magnetic clamping system (2) at its base, terminals (3) for connection to the cartridge (10), a safety (4), a button (5) or push-activation system and an integrated battery (6).

[0011] In a practical non-limiting embodiment, the inner housing (1) is made of a metallic material.

[0012] In a particular embodiment, the safety mechanism (4) is of the hinged protective cover type.

[0013] In a second particular embodiment, the safety mechanism (4) is of the ring type.

[0014] In a preferred embodiment, the terminals (3) of the activating device are connected to the terminals (11) of the cartridge (10).

Claims

1. Device for activating electronic cartridges comprising a muzzle-loading refill system, **characterised in that it** comprises an interior housing (1) with a muzzle-loading system, a magnetic fastening system (2) at its base, terminals (3) for connection to the cartridge (10), a safety mechanism (4), a button (5) or push-activation system and an integrated battery (6).

2. Device for activating electronic cartridges comprising a muzzle-loading refill system according to claim 1 where the inner housing (1) is made of a metallic material.

3. Device for activating electronic cartridges comprising a muzzle-loading refill system according to claims 1 and 2, where the safety mechanism (4) is of the hinged protective cap type and its release is necessary for the use of the button (5).

4. Device for activating electronic cartridges comprising a muzzle-loading refill system according to claims 1 and 2, where the safety mechanism (4) is of the ring type and its release is necessary for the use of the button (5).

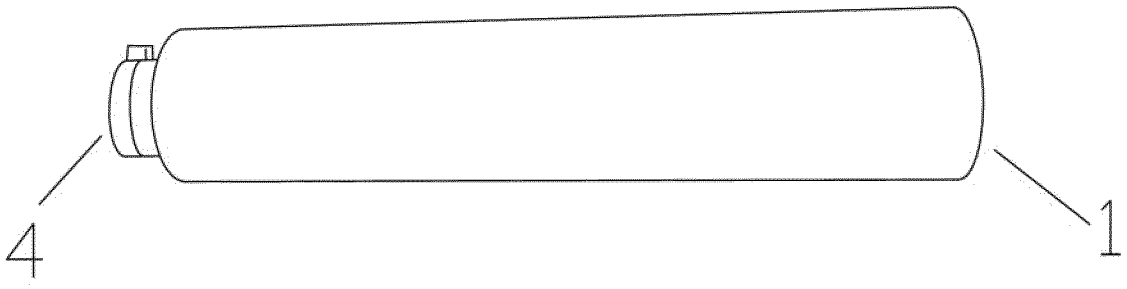

FIG. 1

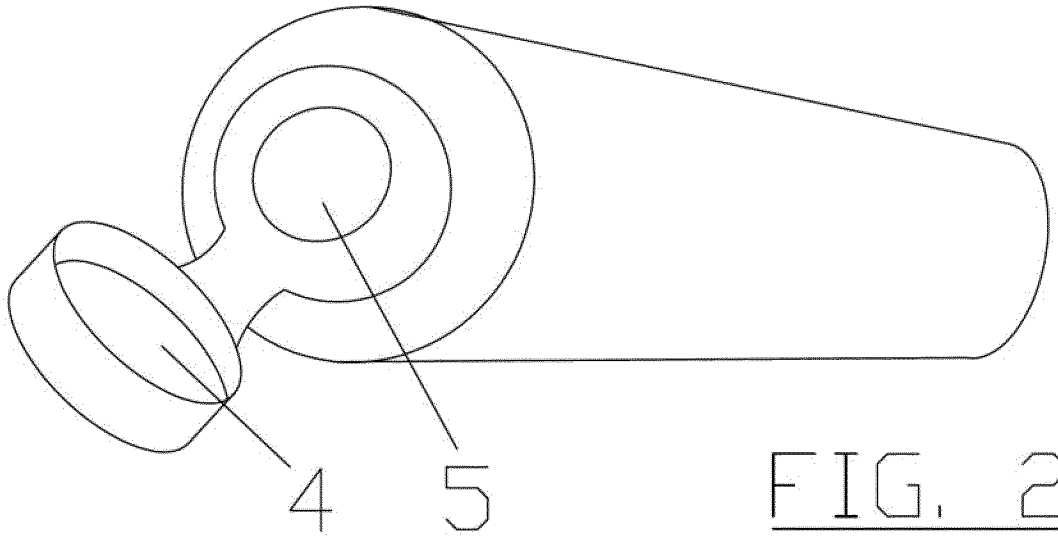

FIG. 2

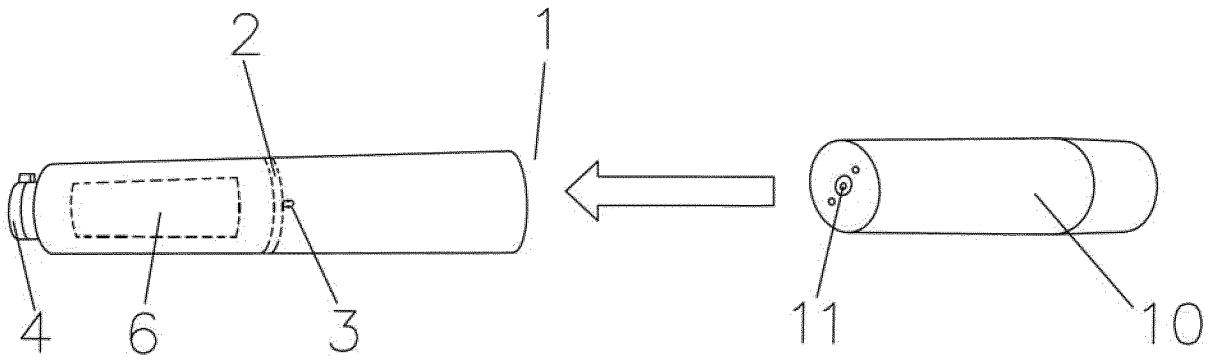

FIG. 3

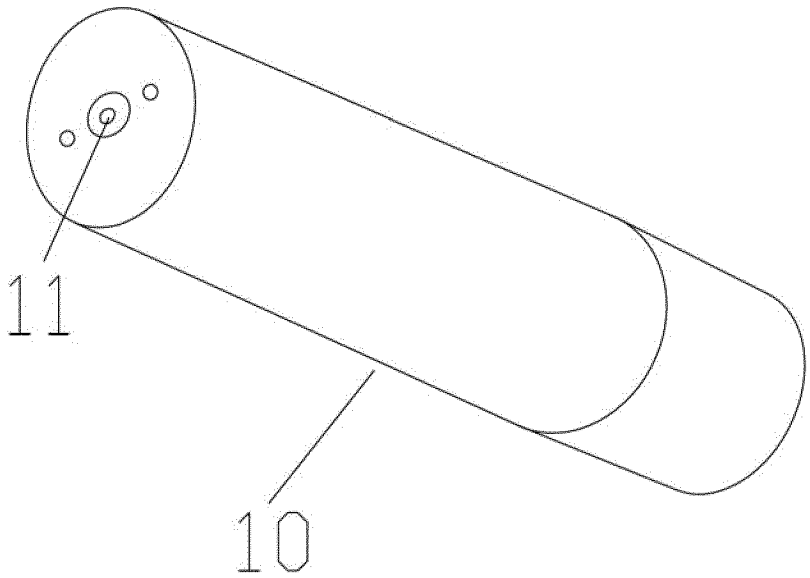

FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2023/070446

A. CLASSIFICATION OF SUBJECT MATTER

See extra sheet

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)
F41A, F42C, F41C, F42B

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)

EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2006117632 A1 (MEYERLE HERBERT) 08/06/2006, the whole document.	1-4
A	US 11656048 B1 (GOLDSTEIN ZACHARY MATTHEW) 23/05/2023, abstract; figures.	1-4
A	EP 2525184 A1 (ALCATEL LUCENT) 21/11/2012, figures 4a, 4b.	1
A	US 6374525 B1 (THOMAS NILS) 23/04/2002, Column 3, lines 38 - 61; figure 2.	1

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

* Special categories of cited documents:
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"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 document is 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 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	Date of mailing of the international search report
16/10/2023	**(16/10/2023)**
Name and mailing address of the ISA/ OFICINA ESPAÑOLA DE PATENTES Y MARCAS Paseo de la Castellana, 75 - 28071 Madrid (España) Facsimile No.: 91 349 53 04	Authorized officer C. Piñero Aguirre Telephone No. 910 780 780

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/ES2023/070446

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US6374525 B1	23.04.2002	NONE	

Form PCT/ISA/210 (patent family annex) (July 2022)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2023/070446

CLASSIFICATION OF SUBJECT MATTER

F41A19/58 (2006.01)
F42C11/00 (2006.01)
F41C9/08 (2006.01)
F42B5/08 (2006.01)
F42C19/12 (2006.01)

Form PCT/ISA/210 (extra sheet) (July 2022)