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(54) Package for cartridges for firearms

(57) The invention relates to a package for cartridges of firearms comprising a container element filled with a given number of cartridges and information of temperature effect on the trajectory by means of intelligent printings each visible at the selected temperature or temperature range is arranged on the container element.

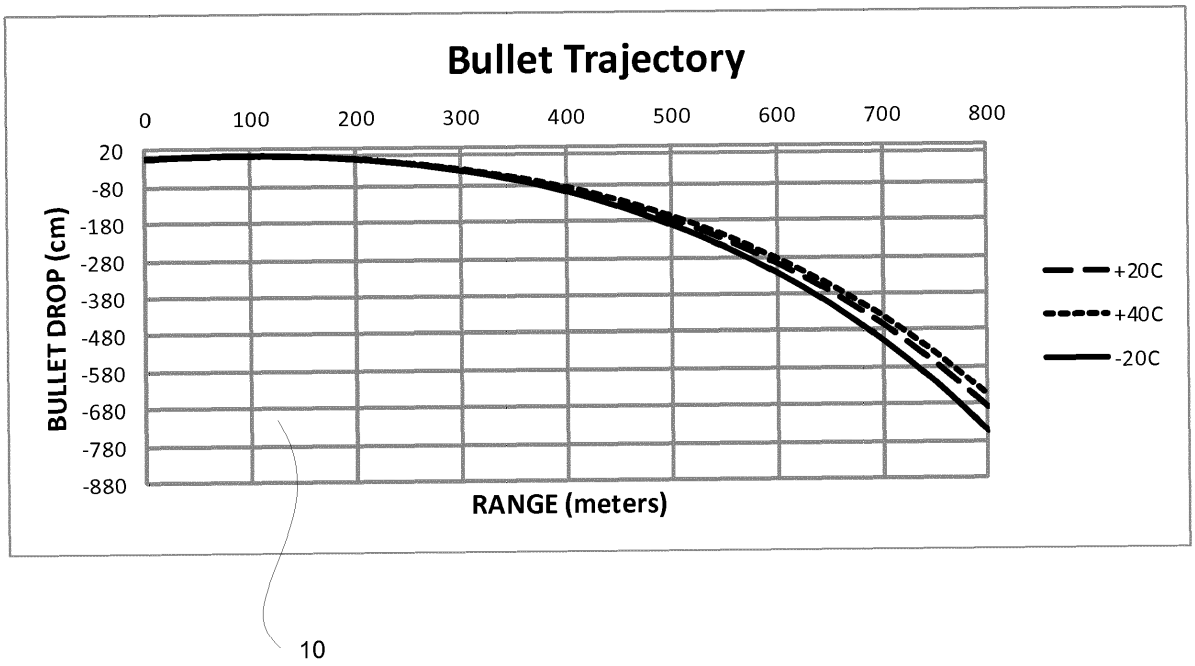

Fig. 1

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Description

[0001] The present invention relates to packages for cartridges of firearms. More precisely the present invention relates to a package for cartridges of firearms according to the preamble part of claim 1.

[0002] Packages for cartridges of firearms typically comprise a container element filled with a given number of cartridges, and at least one closure element for said container element. In cartridge packages the container element typically consists of a simple box and the closure element is formed of a cover which can be swung by folding or is removable by pulling out. The cartridges are arranged in the box either loosely or in a holding element such as, for instance, a honeycomb frame. On the outside of the container element typically has been attached a label with information of the cartridges. The information on the label comprises for example caliber, information of bullet; type, code, weight, game, velocity, length of barrel, energy, trajectory, gee. The information can also be directly printed on the surface of the container element. Trajectory of the bullet of the cartridge type contained in the container element is typically presented in a trajectory table indicating the trajectory of the bullet at given distances in the calibrating adjustment temperature, typically + 20 °C.

[0003] Among other things such as gravity, wind, humidity, elevation also temperature has an effect to the trajectory of the bullet. The air temperature and the temperature of the powder are the main influencing factors in the temperature effect to the trajectory of the bullet. In figure 1 is shown an example of temperature effect on bullet trajectory. As can been seen in longer distances the effect increases and especially in game hunting where the shooting distance is longer, the temperature effect is significant in respect of the shooting accuracy and thus to success of shooting. Thus when shooting in temperatures not corresponding to the calibrating adjustment temperature, the trajectory will not be as desired as the information needed for temperature correction is not available.

[0004] An object of the present invention is to create a package for cartridges of firearms by which the above described problem relating to need of information of temperature effect on the bullet trajectory is eliminated or at least minimized.

[0005] Another object of the present invention is to create a new type of presenting information of temperature effect on the bullet trajectory.

[0006] In order to achieve the above objects and those that will come apparent later the package for cartridges of firearms is mainly characterized by the features of the characterizing part of claim 1.

[0007] Dependent claims present advantageous features and embodiments of the invention.

[0008] According to the invention the package for cartridges of firearms comprises a container element filled with a given number of cartridges and on the container element arranged information of temperature effect on the trajectory by means of intelligent printings each visible at the selected temperature or temperature range. Advantageously the information of the temperature effect on the trajectory is arranged on the outer surface of the container element. By this the effect of temperature on the trajectory is available to the shooter for the required correction needed at the shooting temperature.

[0009] According to an advantageous feature of the invention temperature effect on the trajectory of at least two temperatures or temperature ranges has been printed on container element or on a label attached on the container element.

[0010] According to an advantageous feature of the invention temperature effect on the trajectory of at least two temperature ranges has been printed on the container element or on the label attached on the container element by intelligent printings each visible at the selected temperature or temperature range of the at least two temperatures or temperature ranges. By this the temperature effect in trajectory at the shooting temperature is visible and easily available for the shooter.

[0011] According to an advantageous feature of the invention the label comprising the information of the temperature effect on the trajectory is releasably attached on the container element so that the shooter can take a number of cartridges and the label with him when going to shoot and leave the container behind with the rest of the cartridges.

[0012] According to an advantageous feature of the invention the label comprising the information of the temperature effect on the trajectory is releasably and reattachably attached on the container element so that the shooter can take a number of cartridges and the label with him when going to shoot and leave the container behind with the rest of the cartridges and at shooting attach the label on the magazine and when back from the shooting re-attach the label on the container element for future needs.

[0013] According to an advantageous feature of the invention the information of the temperature effect on the trajectory is arranged as a table and/or as a curve.

[0014] Advantageously the container element comprises at least one closure element and consists of a simple box and the closure element is formed of a cover which can be swung by folding or is removable by pulling out. The cartridges are arranged in the box either loosely or in a holding element such as, for instance, a honeycomb frame.

[0015] Advantageously on the container element or on the label of the container element is arranged additional information useful for the shooter when the shooting.

[0016] In this description and the following claims by intelligent printing is meant a printing made by intelligent printing ink, which comprises substances and/or particles that effects the visibility of the printing in relation to temperature or temperature range such that the printing is visible at given temperature or temperature range.

[0017] In the following the invention and its advantages are explained in greater detail below in the sense of examples and with reference to accompanying drawings, where

in figure 1 is schematically shown an example of a curve diagraph indicating temperature effect on trajectory,

in figure 2 is schematically shown examples of table diagraphs indicating temperature effect on trajectory and

in figure 3 is schematically shown other examples of table diagraphs indication temperature effect on trajectory.

[0018] In figure 1 is schematically shown an example of temperature effect on bullet trajectory as a curve diagraph 10. According to this example of the invention the package for cartridges of firearms comprises the information of the temperature effect on the trajectory at temperatures +20 °C or -20 °C or + 40 ° as a curve diagraph 10 in accordance with the example of figure 1. Advantageously the curve diagraph has been printed on container element or on a label attached on the container element by intelligent printings such that each curve is visible at the selected temperature or temperature range only, which then corresponds the shooting environment temperature.

[0019] In figure 2 is schematically shown three table diagraphs indicating examples of temperature effects on bullet trajectory as tables 11, 12, 13 each on given temperature to be arranged on the container element. In table 11 is temperature effect on bullet trajectory when temperature is +20 °C. In table 12 is temperature effect on bullet trajectory when temperature is -20 °C. In table 13 is temperature effect on bullet trajectory when temperature is +40 °C. Advantageously each table 11, 12, 13 is visible at the corresponding temperature i.e. +20 °C or -20 °C or + 40 ° and thus visible in shooting environment temperature. Thus the package for cartridges of firearms comprises the information of the temperature effect on the trajectory, which information is arranged on container element for example as table diagraphs 11, 12, 13 in accordance with the examples of figure 2.

[0020] In figure 3 is schematically shown three table diagraphs indicating examples of temperature effects on bullet trajectory as tables 21, 22, 23 each on given temperatures to be arranged on the container element. In table 21 values of temperature effect on the bullet trajectory are visible when temperature is +20 °C. In table 22 values of temperature effect on the bullet trajectory are visible when temperature is -20 °C. In table 33 values of temperature effect on the bullet trajectory are visible when temperature is +40 °C. Thus the package for cartridges of firearms comprises the information of the temperature effect on the trajectory at the shooting environment temperature, which information is arranged on container element for example as table diagraphs 21, 22, 23 in accordance with the examples of figure 3.

Claims

1. Package for cartridges of firearms comprising a container element filled with a given number of cartridges, **characterized in that** information of temperature effect on the trajectory by means of intelligent printings each visible at the selected temperature or temperature range is arranged on the container element.

2. Package according to claim 1, **characterized in that** the information of the temperature effect on the trajectory is arranged on the outer surface of the container element.

3. Package according to claim 1 or 2, **characterized in that** the information of the temperature effect on the trajectory comprises information of temperature effect on the trajectory of at least two temperatures or temperature ranges printed on the container element or on a label attached on the container element.

4. Package according to any of claims 1 - 3, **characterized in that** the temperature effect on the trajectory of at least two temperature ranges has been printed on the container element or on the label attached on the container element by intelligent printings each visible at the selected temperature or temperature range of the at least two temperatures or temperature ranges.

5. Package according to claim 3 or 4, **characterized in that** the label comprising the information of the temperature effect on the trajectory is releasably attached on the container element.

6. Package according to claim 5, **characterized in that** the label comprising the information of the temperature effect on the trajectory is reattachably attached on the container element.

7. Package according to any of previous claims, **characterized in that** the information of the temperature effect on the trajectory is arranged as a table and/or as a curve.

8. Package according to any of previous claims, **characterized in that** the container element comprises at least one closure element and consists of a simple box and the closure element is formed of a cover which can be swung by folding or is removable by pulling out and that the cartridges are arranged in the box either loosely or in a holding element such as, for instance, a honeycomb frame.

9. Package according to any of previous claims, **characterized in that** on the container element or on the label of the container element is arranged additional information useful for the shooter when the shooting.

10. Package according to any of previous claims, **characterized in that** the package for cartridges of firearms comprises the information of the temperature effect on the trajectory at temperatures +20 °C or -20 °C or + 40 °, which information is arranged on container element for example as a curve diagraph (10) printed on container element or on a label attached on the container element by intelligent printings such that each curve is visible at the selected temperatures only, which selected temperature corresponds to the shooting environment temperature.

11. Package according to any of previous claims, **characterized in that** the package for cartridges of firearms comprises the information of the temperature effect on the trajectory as tables (11, 12, 13; 21, 22, 23) each comprising the information of the temperature effect on the trajectory visible at the corresponding temperature of the shooting environment temperature.

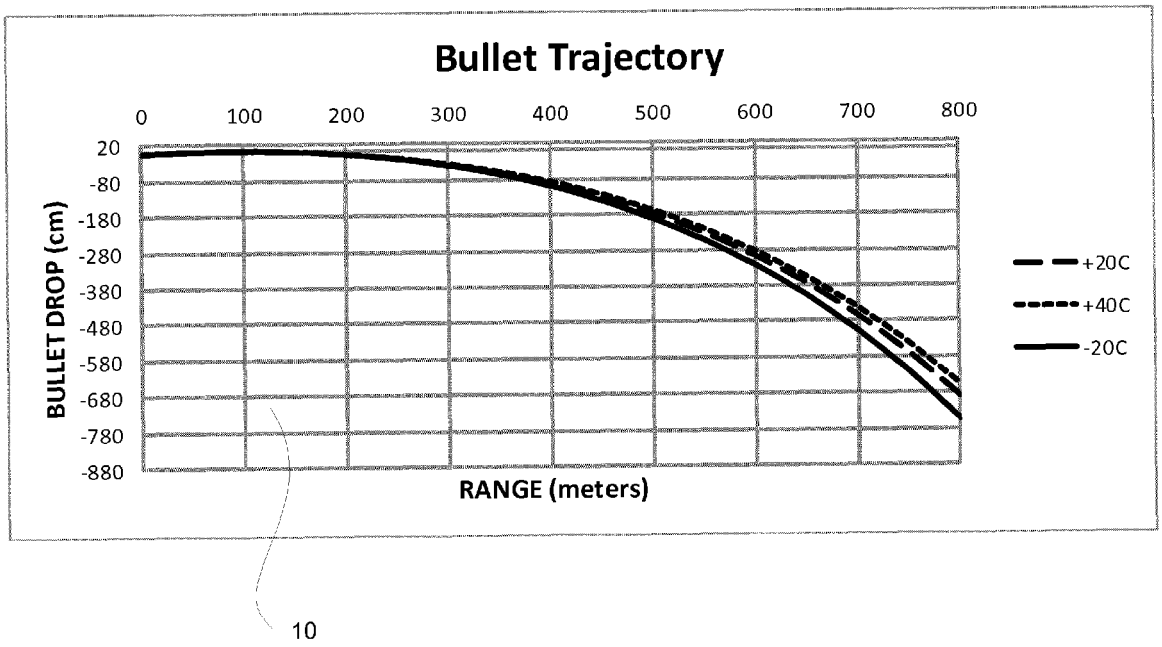
Bullet Trajectory
0
100
200
300
400
500
600
700
800
20
-80
-180
-280
-380
-480
-580
-680
-780
-880
BULLET DROP (cm)
RANGE (meters)
+20C
+40C
-20C
10

Fig. 1

Trajectory Range [m]	+20 C deg. Velocity [m/s]	Elev. clicks	Wind 3 m/s [cm]
0	830	0	0
50	797	-2	0
100	764	-3	2
150	731	0	3
200	699	4	6
250	668	8	10
300	638	12	15
350	607	17	21
400	577	23	28
450	548	29	37
500	520	35	47
550	493	42	59
600	466	49	72
650	441	57	87
700	417	66	104
750	396	76	123
800	376	86	144

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Trajectory Range [m]	-20 C deg. Velocity [m/s]	Elev. clicks	Wind 3 m/s [cm]
0	802	0	0
50	769	-2	0
100	736	-3	1
150	704	0	4
200	673	4	7
250	643	9	11
300	612	13	16
350	581	19	22
400	552	25	30
450	524	31	40
500	497	38	51
550	470	46	63
600	445	54	76
650	421	62	93
700	399	72	111
750	379	83	130
800	361	94	152

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Trajectory Range [m]	+40 C deg. Velocity [m/s]	Elev. clicks	Wind 3 m/s [cm]
0	846	0	0
50	813	-2	0
100	779	-2	2
150	746	0	3
200	714	3	6
250	683	7	10
300	652	12	15
350	621	17	21
400	591	22	27
450	561	27	36
500	533	33	46
550	506	40	57
600	479	47	70
650	453	55	84
700	428	63	100
750	406	72	119
800	385	82	139

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Fig. 2

Trajectory	-20 C deg.		+20 C deg.		+40 C deg.	
Range	Velocity	Elev.	Velocity	Elev.	Velocity	Elev.
[m]	[m/s]	clicks	[m/s]	clicks	[m/s]	clicks
0	802	0	830	0	846	0
50	769	-2	797	-2	813	-2
100	736	-3	764	-3	779	-2
150	704	0	731	0	746	0
200	673	4	699	4	714	3
250	643	9	668	8	683	7
300	612	13	638	12	652	12
350	581	19	607	17	621	17
400	552	25	577	23	591	22
450	524	31	548	29	561	27
500	497	38	520	35	533	33
550	470	46	493	42	506	40
600	445	54	466	49	479	47
650	421	62	441	57	453	55
700	399	72	417	66	428	63
750	379	83	396	76	406	72
800	361	94	376	86	385	82

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Trajectory	-20 C deg.		+20 C deg.		+40 C deg.	
Range	Velocity	Elev.	Velocity	Elev.	Velocity	Elev.
[m]	[m/s]	clicks	[m/s]	clicks	[m/s]	clicks
0	802	0	830	0	846	0
50	769	-2	797	-2	813	-2
100	736	-3	764	-3	779	-2
150	704	0	731	0	746	0
200	673	4	699	4	714	3
250	643	9	668	8	683	7
300	612	13	638	12	652	12
350	581	19	607	17	621	17
400	552	25	577	23	591	22
450	524	31	548	29	561	27
500	497	38	520	35	533	33
550	470	46	493	42	506	40
600	445	54	466	49	479	47
650	421	62	441	57	453	55
700	399	72	417	66	428	63
750	379	83	396	76	406	72
800	361	94	376	86	385	82

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Trajectory	-20 C deg.		+20 C deg.		+40 C deg.	
Range	Velocity	Elev.	Velocity	Elev.	Velocity	Elev.
[m]	[m/s]	clicks	[m/s]	clicks	[m/s]	clicks
0	802	0	830	0	846	0
50	769	-2	797	-2	813	-2
100	736	-3	764	-3	779	-2
150	704	0	731	0	746	0
200	673	4	699	4	714	3
250	643	9	668	8	683	7
300	612	13	638	12	652	12
350	581	19	607	17	621	17
400	552	25	577	23	591	22
450	524	31	548	29	561	27
500	497	38	520	35	533	33
550	470	46	493	42	506	40
600	445	54	466	49	479	47
650	421	62	441	57	453	55
700	399	72	417	66	428	63
750	379	83	396	76	406	72
800	361	94	376	86	385	82

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Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 14 19 8756

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 4 288 197 A (GUROLNICK RICHARD C) 8 September 1981 (1981-09-08) * column 5, lines 11-21; figures 1-5 * -----	1-11	INV. F42B39/26 G01K11/12 G09F3/00
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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	29 May 2015	Giesen, Maarten

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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