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(54) **PERFORATED DIE STAMPING FIREWORKS CAKE**

(57) The present invention discloses a kind of perforated die stamped fireworks cake, which comprises a firework body (1), which comprises several firework barrels (2) which are vertically disposed and opened on the top side of said firework body (1) are evenly distributed and in the middle of the firework body (1), and also comprises second orifices of diamond shape (4) distributed among each firework barrel (2), and also comprises circular shaped first orifices (3) distributed at the outer area of the firework body among each firework barrel (2). In the

present invention, the design of the circular and diamond shaped orifices can reduce total weight of fireworks cakes, and especially, for exportation of small sized fireworks cake. Thus, this lower weight results in a greater transportation and a lower price of containers. In addition, with the circular and diamond shaped orifice design, heat radiation is greatly facilitated, and in case one of the firework barrels exploded, the explosion would not extend to the surrounding ones, which is safer.

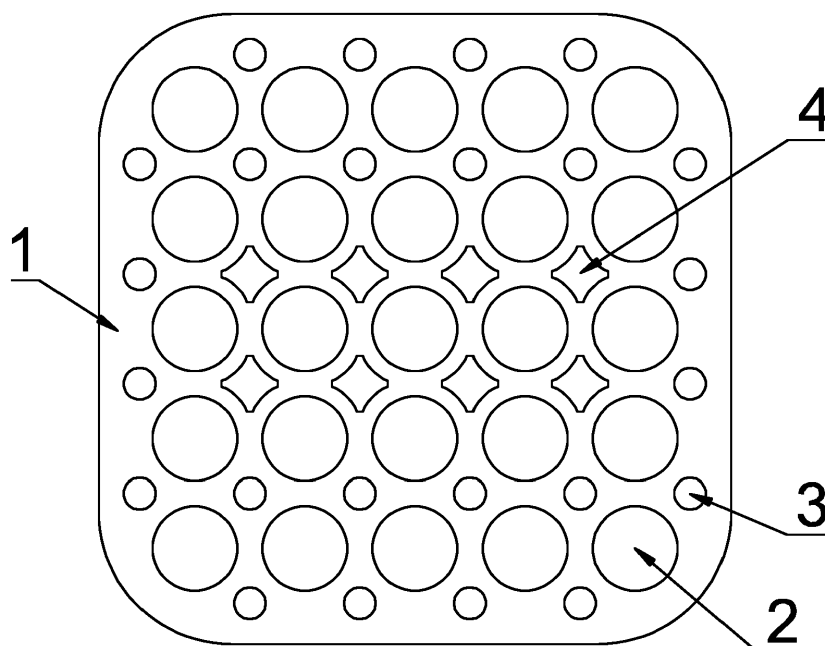


Fig 1

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Description

OBJECT OF THE INVENTION

[0001] The present invention relates to fireworks cake manufacturing, specifically a kind of perforated die stamped fireworks cake.

BACKGROUND OF THE INVENTION

[0002] There is a large amount of heat produced when a fireworks cake is burning. Gypsum fireworks cakes that are commercially available at the moment are designed as a single piece which does not conduce heat radiation, and consequently, the burning effect of fireworks cakes is usually affected.

[0003] Bearing in mind that gypsum material weighs very much and considering that commercially available fireworks cake are of a single piece, which is very heavy and not convenient for transportation.

[0004] As gypsum fireworks cakes are one-piece, during burning, heat is not properly radiated, and with two firework barrels close to each other, in case one of the firework barrels exploded, it may cause the explosion of the entire fireworks cake and may cause an accident.

[0005] Therefore, in light of the above mentioned situations, a new type of perforated die stamped fireworks cake is an urgent need to overcome the problems disclosed above.

DESCRIPTION OF THE INVENTION

[0006] The purpose of the present invention is to provide a kind of perforated die stamped fireworks cake, to address the problems mentioned in the background technology.

[0007] To realize the above goal, the present invention provides a new type of perforated die stamped fireworks cake that comprises a firework body wherein several firework barrels, vertically disposed and opened on the top, are evenly distributed, and also comprises diamond shaped second orifices distributed among the fireworks barrels and in the middle of the firework body, and also comprises circular shaped first orifices distributed among the firework barrels and at the outer area of the firework body.

[0008] Furthermore, viewing from the top side, the firework body appears to be square or rectangular, and the four corners of the firework body are rounded off.

[0009] Additionally, the firework body is made from gypsum.

[0010] Moreover, the firework barrels are cylindrical shaped and all firework barrels are vertically disposed in said firework body.

[0011] In the present invention, the height of the firework barrels, first orifices and second orifices is the same viewing from front side, and the diameter of the circular shaped first orifices is smaller than the diameter of the

firework barrels.

[0012] Further to the above technical scheme, the diameter of the circular shaped first orifices is between 1/5-1/2 of the diameter of the firework barrels.

[0013] Compared to the prior art, the beneficial effect of the present invention is that the circular and diamond shaped hollow parts of the fireworks cake object of the invention are designed to reduce the weight.

[0014] In the particular case of small sized fireworks cakes exportation, with lower weight containers can results in an economic benefit and easier transportation.

[0015] One additional advantage of the present invention is that, due to the perforated design, if one of the firework barrels exploded, the explosion usually does not extend to any other surrounding firework barrels due to the perforated design which make it safer.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016]

Figure 1.- Shows a top view of the structure of the present invention.

Figure 2.- Shows a front view of the structure of the present invention.

[0017] All various elements in the figures are shown as follows:

1. Firework body;
2. Firework barrel;
3. Circular shaped first orifice;
4. Diamond shaped second orifice.

PREFERRED DESCRIPTION OF THE INVENTION

[0018] A clear and complete description will be given to the technical scheme of the present invention with reference to the accompanying figures. Obviously, the embodiments described here are only several embodiments of the present invention, not an exhaustive list of them. Based on the embodiments described here, all other embodiments that a skilled in the art can obtain without creative work shall fall within the scope of protection of the present invention.

[0019] With reference to figures 1 and 2, in one preferred embodiment of the present invention, the perforated die stamped fireworks cake comprises firework body (1), which appears to be square or rectangular when viewing from the top side, and (4) the corners of the firework body are rounded off, which is convenient for packaging. The firework body is made from gypsum and several firework barrels (2) are evenly provided with an opening on their top side. Said firework barrels (2) are of cylindrical shape and vertically disposed in said firework body (1) and in the middle of the firework body (1). The firework body (1) also comprises diamond shaped second orifices (4) distributed among each firework barrel

(2). And the firework body (1) also comprises circular shaped first orifices (3) that are provided at the outer area of said firework body (1) and distributed among each firework barrel (2).

[0020] In one embodiment of the present invention, the height of the firework barrels (2), first orifices (3) and second orifices (4) is the same, viewing from front side, and the diameter of the circular shaped first orifices (3) is smaller than the diameter of the firework barrels (2), and preferably, the diameter of said circular shaped first orifices (3) is between 1/5-1/2 smaller of the diameter of the firework barrels (2).

[0021] The perforated die stamped fireworks cake with the circular and diamond shaped orifices design of the present invention, can reduce the total weight, and especially, in case of small sized fireworks cake exportation, this lower weight results in a greater transportation and a lower price of containers. In addition, with the circular and diamond shaped orifice design, heat radiation is greatly facilitated, and in case one of the firework barrels exploded, the explosion would not extend to the surrounding ones, which makes the present invention safer than the fireworks cakes available in the market.

[0022] The above description is merely the preferred embodiment of the present invention, and it shall be noted that, for those skilled in the art, without leaving the novel design of the present invention, it is possible to make some modifications and improvement, which shall be interpreted as falling within protection scope of the present invention, and not influence practical effects and industrial applicability of the present invention.

Claims

1. Perforated die stamped fireworks cake which comprises firework body (1), **characterized in that** said firework body (1) comprises several firework barrels (2), vertically disposed and opened on the top, that are evenly provided, and also comprises diamond shaped second orifices (4) distributed among each firework barrel (2) and in the middle of the firework body (1), and also comprises circular shaped first orifices (3) distributed among each firework barrel (2) and at the outer area of the firework body (1).
2. Perforated die stamped fireworks cake according to claim 1, **characterized in that** said firework body (1) appears to be square or rectangular from the top view, and the four corners of the firework body (1) are rounded off.
3. Perforated die stamped fireworks cake according to claim 1 or 2, **characterized in that** said firework body (1) is made from gypsum.
4. Perforated die stamped fireworks cake according to claim 1, **characterized in that** said firework barrels

(2) are cylindrical shaped, and each firework barrel (2) is vertically disposed in said firework body (1).

5. Perforated die stamped fireworks cake according to claim 1 or 4, **characterized in that** the height of said firework barrels (2), circular shaped first orifices (3) and diamond shaped second orifices (4) is the same when viewing from the front side, and the diameter of the circular shaped first orifices (3) is smaller than the diameter of the firework barrels (2).
6. Perforated die stamped fireworks cake according to claim 5, **characterized in that** the diameter of the circular shaped first orifices (3) is between 1/5-1/2 of the diameter of the firework barrels (2).

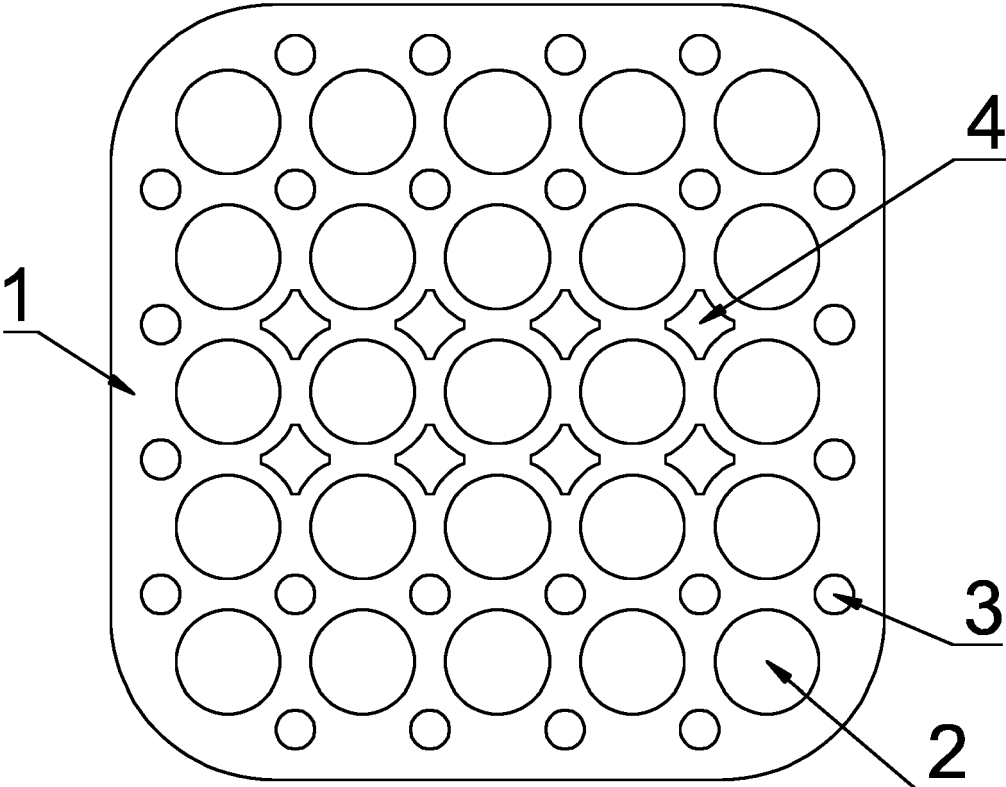


Fig 1

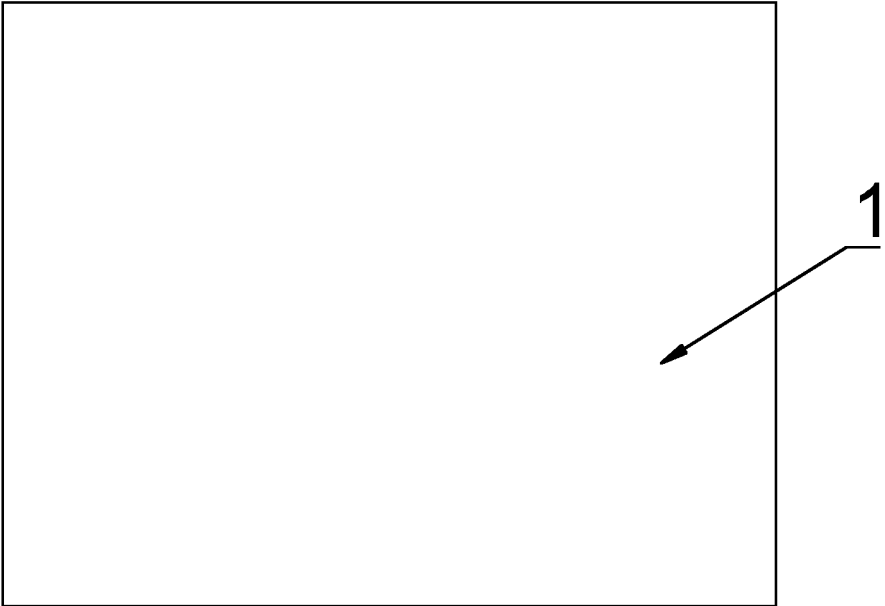


Fig 2



EUROPEAN SEARCH REPORT

Application Number
EP 19 17 4388

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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	CN 104 390 525 B (DANCING FIREWORKS GROUP CO LTD) 23 March 2016 (2016-03-23)	1,4-6	INV. F42B4/14
Y	* claim 1; figures 1,4 *	2,3	
Y	----- CN 201 503 237 U (HUNAN PROVINCE CHANGDE CITY KELITE ADVANCED MATERIALS CO LTD ET AL.) 9 June 2010 (2010-06-09)	2,3	ADD. F42B39/14
A	* claim 1; figure 3 *	1	
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			TECHNICAL FIELDS SEARCHED (IPC)
			F42B F42D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 2 September 2019	Examiner Beaufumé, Cédric
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			

EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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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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02-09-2019

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82