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(54) CLOSURE LID FOR AN "EASY-OPEN" CONTAINER

(57) A closure lid for an "easy-open" container holding packaged food, including a pull-ring (2) attached by circular rivet means (3), said pull-ring (2) having a rounded wedge shape at its widest extremity, and a trapezoidal shape at the tip thereof, being attached via this trapezoidal extremity to the lid (1) by means of the rivet (3), and the pull-ring (2) presenting a trapezoidal depression including a U-shaped weakening line (4) partially surrounding the rivet (3) and, at this extremity, an essentially triangular projection (5), the vertex thereof defining the fulcrum of the pull-ring against the lid (1), where, with regard to the length (L) of the ring, the distance (B') between the extremity of the weakening line (4) and the tip of the ring is B' = L/13.5.

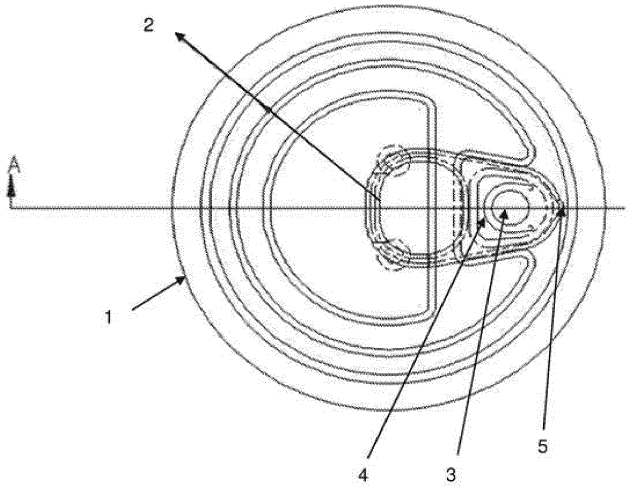

Figure 1

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Description

[0001] The present invention relates to a closure lid for an easy-open container.

[0002] More specifically, the invention provides a closure lid for a so-called easy-open container intended to contain any type of packaged food, the container being of the type that is formed by a metal body, in particular cylindrical-shaped, and a closure lid initially integral to the container, the opening of which is carried out by pulling a pull-ring arranged on the visible face of said lid and fixed thereto by a rivet.

[0003] Containers commonly known as "canning tins" equipped with an easy-open system are well known. These easy-open opening systems usually consist of a lid that is detachably attached to the container thanks to a cut line designed to weaken it and that has a pull-ring on its visible face that allows the lid to be angularly separated, exposing at least part of the content thereof.

[0004] These known canning tins have certain disadvantages associated with the opening system itself. On the one hand, the need to pull the pull-ring entails first applying a force to partially separate said pull-ring from the surface of the lid and, secondly, an upward pulling force on the pull-ring that allows dragging with it the lid itself in order to separate it from the body of the container.

[0005] With regard to the first point, it is often necessary to use a tool to carry out this action, since it can be difficult to separate the pull-ring from the lid in view of the fact that said lifting is produced not only by a lever force against the rivet that fixes the pull-ring to the lid, but also against the body of the can. This applied force often causes the pull-ring to detach from the rivet, thus making it impossible to open the container.

[0006] With regard to the upward pulling force on the pull-ring, it depends not only on the resistance of the cut line on the periphery of the region where the lid is attached to the container, but also on the design of the rivet itself, since opening the lid is usually facilitated by the lever force made by one extremity of the pull-ring in the rivet region on the body of the can, therefore limiting the angle at which the pull-ring is pulled to approximately 22°.

[0007] The present invention solves the aforementioned disadvantages of the already known canning tins, providing a closure lid for a so-called easy-open container intended to contain any type of packaged food where essentially the special shape of the rivet that attaches the pull-ring to the lid allows an easy opening with a greater ring lifting angle and without risk of detachment thereof.

[0008] As mentioned above, the container is of the type that is formed by a metal body, in particular cylindrical-shaped, and a closure lid initially integral to the container, the opening of which is carried out by pulling a pull-ring arranged on the visible face of said lid and fixed thereto by a rivet.

[0009] Thus, the closure lid of the present invention is of the type that has a pull-ring fixed to the lid of a metal container by means of a rivet. Said pull ring essentially has a rounded wedge shape at its widest extremity and a trapezoidal shape at its opposite extremity, being attached via this trapezoidal extremity to the lid by means of a rivet.

[0010] At this trapezoidal extremity, the pull-ring has a likewise trapezoidal depression that presents a U-shaped weakening line that partially surrounds the circular rivet. Also at this extremity, the pull-ring has an essentially triangular projection, the vertex thereof defining the fulcrum of the pull-ring against the lid for opening.

[0011] This design of the pull-ring and rivet assembly of the lid of the invention allows opening at a 29º angle, significantly greater than that provided by the easy-open lids of the prior art, thus facilitating the opening of the container and avoiding the aforementioned drawbacks.

[0012] The invention is described below based on an embodiment thereof and with reference to the attached figures, in which the following is shown:

Figure 1: a top view of the closure lid of the invention.

Figure 2: detail of the pull-ring on the lid of Figure 1.

Figure 3a: cross-section of a conventional lid at the pull-ring region.

Figure 3b: cross-section of Figure 3a in the pull-ring lifting state.

Figure 4a: cross-section according to line A of the lid of Figure 1 at the pull-ring region and detail of the recess.

Figure 4b: cross-section of Figure 4a in the pull-ring lifting state.

[0013] As can be seen in Figure 1, the closure lid (1) of the present invention is of the type that has a pull-ring (2) fixed to the lid (1) of a metal container by circular rivet means (3).

[0014] With reference to Figures 1 and 2, this trapezoidal pull-ring (2) essentially has a rounded wedge shape at its widest extremity and a trapezoidal shape at its opposite extremity, being attached via this trapezoidal extremity to the lid (1) by means of the rivet (3).

[0015] At this trapezoidal extremity, the pull-ring (2) presents a likewise trapezoidal depression including a U-shaped weakening line (4) partially surrounding the rivet (3). Also, at this extremity, the pull-ring has an essentially triangular projection (5) the vertex thereof defining the fulcrum of the pull-ring against the lid for opening.

[0016] In use, when lifting the pull-ring (2) and separating the lid (1), cooperation between the weakening line (4), the projection (5) and the rivet (3) allows the opening of the lid.

[0017] As can be seen in Figures 3a and 3b, the opening angle of the pull-ring is determined by the diameter

(A) of the rivet (3) and by the distance (B) from the extremity (10) of the weakening line (4) to the tip of the pull-ring, which is the region that exerts the force on said weakening line to break the metal. When an upward force is then exerted on the pull-ring, an intermediate region (C) between the rivet (3) and the tip of the pull-ring is deformed thanks to the weakening line and the geometry of the assembly.

[0018] In Figure 3b it is seen that the angle between the lid and the lifted pull-ring is 22º in a conventional lid.

[0019] The lid provided by the invention and in particular the pull-ring (2) and the rivet (3) assembly allows a greater opening than a conventional lid, such as at an angle of 29º compared to the 22º angle of a conventional lid, thereby facilitating the opening of the container and reducing the force needed to do so.

[0020] For this, in the lid of the invention, the distance (B') from the extremity (10) of the weakening line (4) to the tip of the pull-ring is reduced, having a length (B') < (B), such that B' = 0.66 B.

[0021] Thus, as shown in Figures 4a and 4b, with respect to the pull-ring length (L) in the lid of the invention, the distance between the extremity of the weakening line (4) and the tip of the pull-ring is B'= L/13.5.

[0022] In a preferred embodiment, this distance (B') is 2.75 mm.

[0023] For example, to achieve this greater distance (B') in one example of embodiment, the diameter (A) of the rivet (3) is increased.

[0024] In addition, the lid of the invention has, in correspondence with the essentially triangular projection (5) whose vertex defines the fulcrum of the pull-ring against the lid, a concave recess (6) that facilitates the pivoting of the pull-ring extremity on the lid in order to further assist the opening. In a preferred embodiment, said recess has a radius of 0.7 mm.

[0025] Similarly, to facilitate opening, the rounded extremity opposite the rivet region of the pull-ring (2) forms an angle of 174° relative to the plane of the lid surface, thereby enabling an angle of 29° to be reached more quickly at the extremity of the tip of the pull-ring.

Claims

1. Closure lid (1) for an easy-to-open container, usually called "easy-open", and intended to contain any type of packaged food, the container being of the type that formed by a metal body, in particular cylindrical-shaped, the closure lid (1) being of the type that has a pull-ring (2) fixed to the lid (1) by circular rivet means (3), the pull-ring (2) having a rounded wedge shape at its widest extremity and a trapezoidal shape at its opposite extremity or tip of the pull-ring, being attached via this trapezoidal extremity to the lid (1) by means of the rivet (3) and the pull-ring (2) presenting a likewise trapezoidal depression that includes a U-shaped weakening line (4) partially surrounding the rivet (3) and, at this extremity, an essentially triangular projection (5) the vertex thereof defining the fulcrum of the pull-ring against the lid (1), **characterised in that**, with respect to the pull-ring length (L), distance (B') between the extremity of the weakening line (4) and the tip of the pull-ring is B' = +96L/13.5.

2. Closure lid (1) for an easy-open container according to claim 1, **characterised in that** the distance (B') is 2.75 mm.

3. Closure lid (1) for an easy-open container according to claim 1, **characterised in that** it has, in correspondence with the essentially triangular projection (5) whose vertex defines the fulcrum of the pull-ring against the lid, a concave recess (6) that facilitates the pivoting of the pull-ring extremity on the lid in order to further assist the opening.

4. Closure lid (1) for an easy-open container according to claim 3, **characterised in that** said recess has a radius of 0.7 mm.

5. Closure lid (1) for an easy-open container according to any of the preceding claims, **characterised in that** the rounded extremity opposite the rivet region of the pull-ring (2) forms an angle of 174 ° relative to the plane of the lid surface.

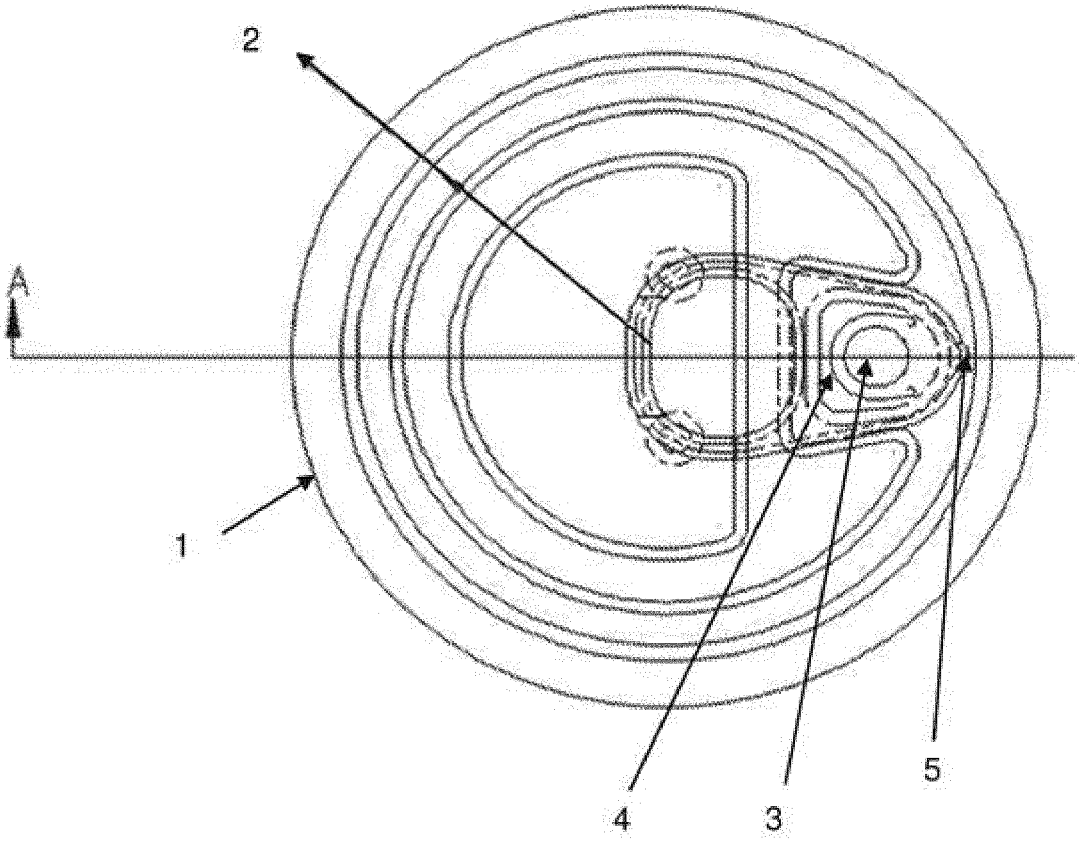

Figure 1

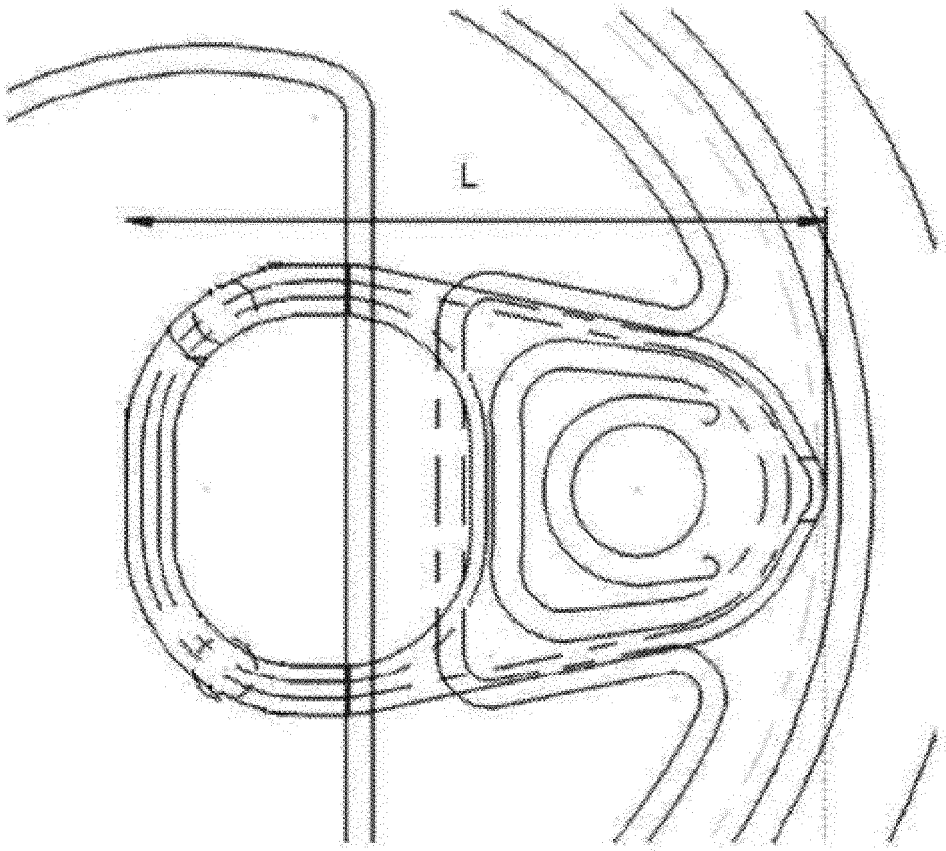

Figure 2

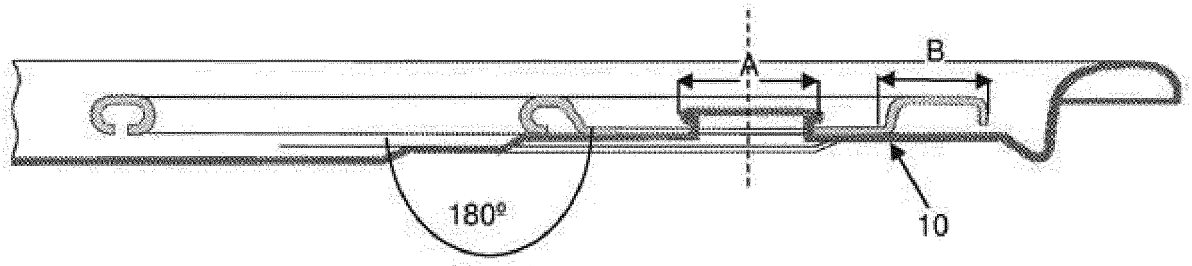

Figure 3a

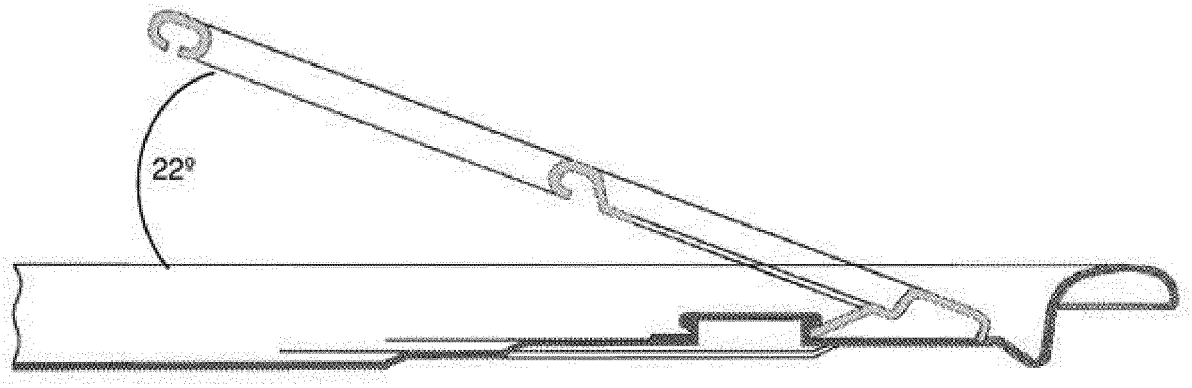

Figure 3b

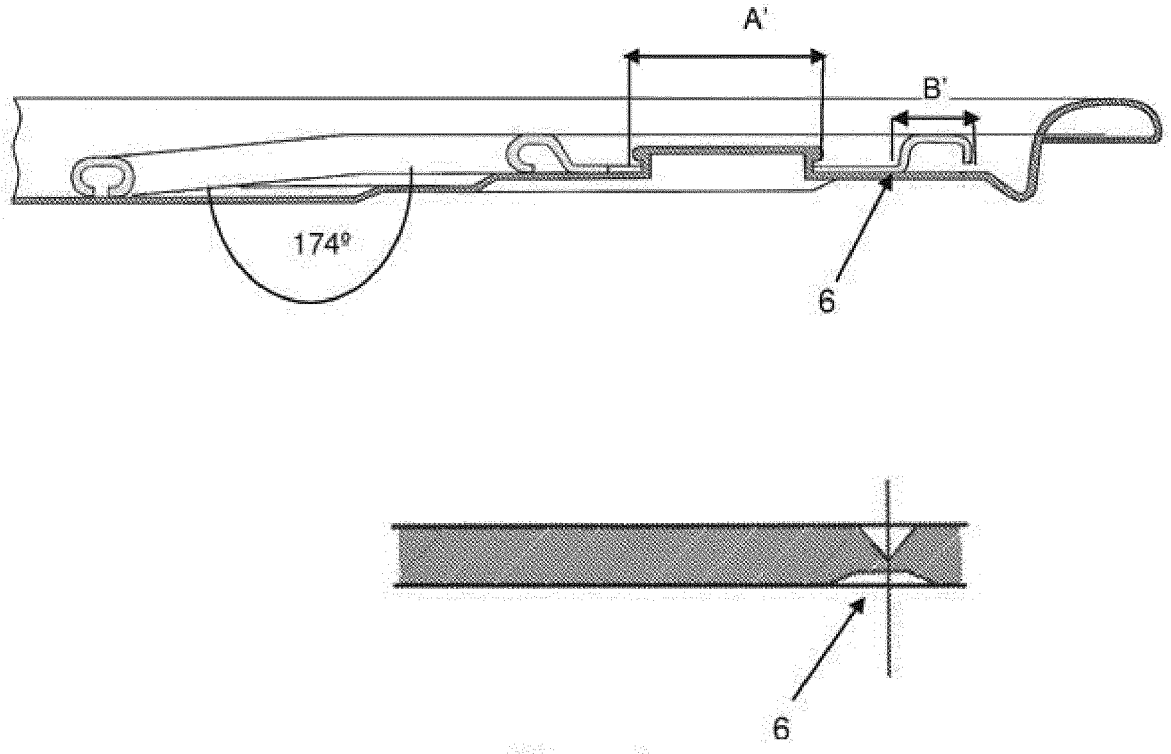

Figure 4a

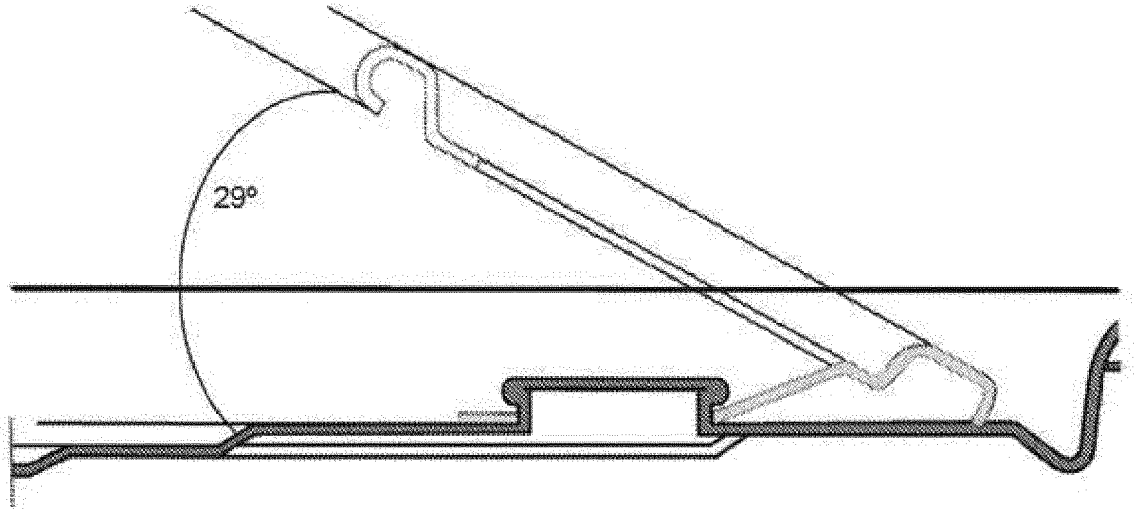

Figure 4b

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2020/070020

A. CLASSIFICATION OF SUBJECT MATTER

B65D17/40 (2006.01)

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)
B65D

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, INVENES, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	ES 1201686 U (GRUPO CONSERVAS GARAVILLA S.L.; IBEREMBAL S.L.) 19/12/2017, page 3, line 35 – page 4, line 23; claim 1; figure	1-5
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A	US 4890759 A (ALUMINUM CO OF AMERICA) 02/01/1990, abstract; figures.	1-5

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

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"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
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"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
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Date of the actual completion of the international search	Date of mailing of the international search report
06/03/2020	**(10/03/2020)**
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 F. Riesco Ruiz Telephone No. 91 3496869

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2020/070020

C (continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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A	US 3843012 A (ERMAL CO) 22/10/1974, abstract; figures.	1-5

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