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(71) Applicants:  
• **Nuovo BV**  
**5471 Loosbroek (NL)**  
• **modico & stampoint Bogusław Malczynski**  
**04-628 Warszawa (PL)**

(72) Inventors:  
• **Wouters, Maurik**  
**5481 Schijndel (NL)**  
• **Malczynski, Bogusław**  
**03-971 Warszawa (PL)**

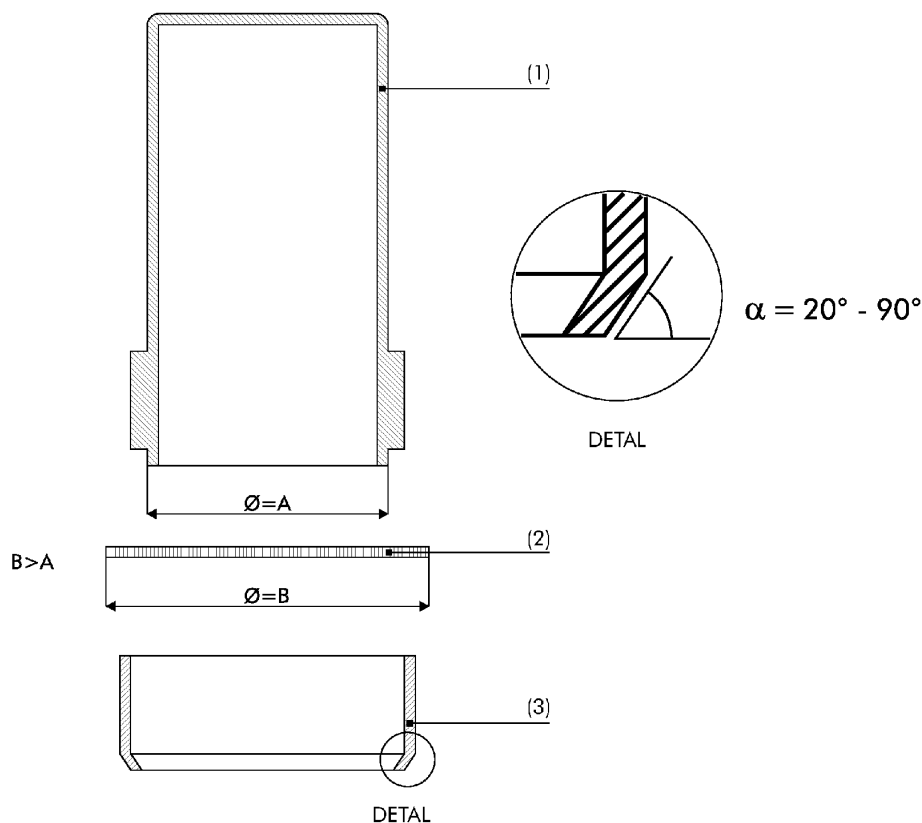
(74) Representative: **Witek, Rafal**  
**WTS Witek Czernicki Sniezko**  
**Patent Attorneys**  
**ul. Rudolfa Weigla 12**  
**53-114 Wrocław (PL)**

(54) **A stamp for non-flat surfaces and a method of producing a spherical printing plate of the stamp**

(57) The subject of the present invention is a stamp for marking non-flat surfaces as well as a method of ob-

taining a spheroid printing template of the stamp. The stamp is characterised by the use of a compression ring clamp(2)

FIG. 2



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## Description

**[0001]** The present invention is for use in the marking of non-flat surfaces, particularly in the food industry for marking eggs.

**[0002]** The marking of non-flat surfaces, particularly eggs, requires the stamp to have a particular structure. Patent US4314503 reveals a device for marking bottles containing a rim 22 with an printing membrane 16 stretched thereon, which comes in contact with the curve of an object, i.e. a bottle. The printing membrane 16 is flat when at rest. Patent application WO2007/062539 reveals a stamp for marking food products, particularly eggs, containing, amongst others, a printing plate 4 mounted on a template 5, in the form of an ink-saturated sponge. The printing plate 4 is spherical due to the shape imparted by the mounting element 3 and template 5. A stamp is revealed by patent EP1457108 possessing a template 3 in the form of a membrane with perforations 6 which allow the passage of ink 5 and moistens the printing membrane 7 glued onto the template 3. The above mentioned solutions do not resolve the problem of delicate objects such as eggs. The stiffening of a membrane with a template, either a sponge or a membrane, may cause a loss of elasticity which may damage the eggs. The stretching of a membrane on a drum is suitable only for printing on hard objects such as bottles. Moreover, the use of glue for mounting printed film onto a template stiffens the membrane. The print on a flat film becomes distorted following imprinting on a sphere, or the image is incomplete. Thus there still remains a need to solve the problem entailing the delivery of a stamp for non-flat surfaces, which would possess a non-flat membrane surface elastic enough so as not to damage the delicate object and will easily assume its shape during printing of the sign, which will not become distorted during printing, where it will also be characterised by a sufficient elasticity of the layer with the sign, which is smaller than the template. Unexpectedly, the present invention has solved the abovementioned problem.

**[0003]** The subject of the present invention is a stamp for non-flat surfaces comprising a case and a template, characterised in that the edges of the template are attached to the case with the aid of a compression ring clamp. Equally preferentially, a stamp according to the present invention, angle  $\alpha$  of the edge bevel of the compression ring clamp is from  $20^\circ$  to  $30^\circ$ . In the next equally preferential embodiment of the present invention, the stamp is characterised in that the template is made of foamed polyolefin, foamed EVA, latex or another soft material such as synthetic rubber. Equally preferentially, a stamp according to the present invention, is characterised in that the diameter of the case comprises at least 90% of the template diameter.

**[0004]** The second subject of the present invention is a method of producing the spheroid shape of the printing template of the stamp, characterised in that it encompasses:

a) connection of the template with the case,  
b) compression of the template onto the case with the aid of a compression ring clamp. Equally preferentially, a method according to the present invention is characterised in that stage (a) encompasses putting the edge of the template in contact parallel to the side of the case cylinder. In the next preferential embodiment of the present invention the method is characterised in that stage (b) encompasses the twisting or compression or snapping shut the compression ring clamp with the case.

**[0005]** The present invention makes it possible to obtain a printing template with a spheroid shape solely through its compression with a case of an appropriate shape. During printing on, for example, an egg, it is important that the template be very soft, so as to deform and adapt to the surface of the egg. In constructing it from a soft layer and a "mould" as in earlier solutions, it lacked the required elasticity, which has been achieved in the present invention. Heretofore, there has been a conflict between the elasticity of the template itself and the mould: to shape the template along with the mould, it had to have an appropriate elasticity, lesser than the template, otherwise it would not be possible to shape it. If the mould was softer than the template, then the template would impart its shape to it which was also not preferable. The use of a highly elastic monolayer membrane in the present invention has solved the indicated problems. The shape of the membrane is obtained by placing the membrane between the case and compression ring clamp. Due to the fact that the edges of the template abutting the case are parallel to the side of the case cylinder, the resulting shape of the template in contact with an object is spheroidal, where it may be obtained only by the edges of the compression ring clamp of the present invention. Moreover, extant solutions made it impossible to expose a template already spherical, which must be compressed during the exposure. Glueing the template onto a spherical mould and rendering its shape was very difficult in practice. Moreover, the production of a template already in the shape of a mould was very complicated, and therefore expensive, and a spheroid template made it impossible to expose. The present invention has removed all these problems through the use of a compression ring clamp of a characteristic shape, due to which it was possible to place the edge of the template in parallel to the side of the case cylinder.

**[0006]** The present invention has been illustrated in example embodiments shown in the attached illustrations where Fig. 1 shows a lateral view of the stamp; Fig. 2 shows a longitudinal section through the stamp without a mounted template, with the diameter A of the case and a template not mounted in the stamp B, and Fig. 3 shows a longitudinal section through the stamp with a mounted membrane.

**[0007]** Preferential embodiments of the present invention have been described below.

Example 1.

**[0008]** A stamp is composed of a case 1, to which is attached a template 2 found between the case 1 and compression ring clamp 3. The edge of the template 2 on one side abuts, in parallel, the side of the case cylinder 1, and on the other side the edge slant of the compression ring clamp 3 with an angle  $\alpha$ . The template 2 with the sign is made of foamed polyolefin according to flash technology revealed in patents US. Patent No. 5,858,298; FR 69 90 1249,1-2307 ; GB EE 3228, and PL 180287 with subsequent amendments, consisting of thermocoupling fragments of microporous material by transmitting a flash impulse of light from a xenon source through a printed material and a separation film.

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Example 2.

**[0009]** A method of producing the spheroid shape of the printing template 2 on the case 1 parallel to the edge formed by its rim. The template 2 with the compression ring clamp 3. As a result of pressure applied to the compression ring clamp 3, the printing template assumes a spheroid shape.

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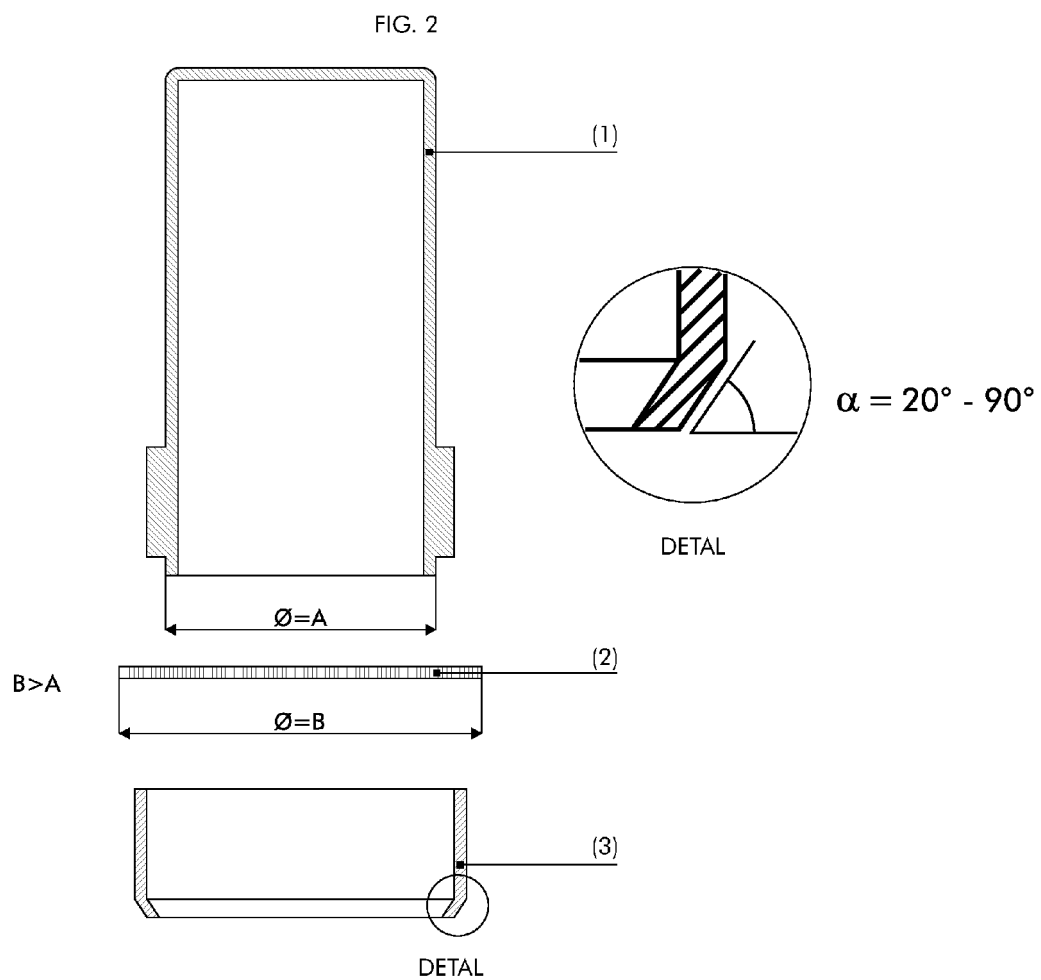
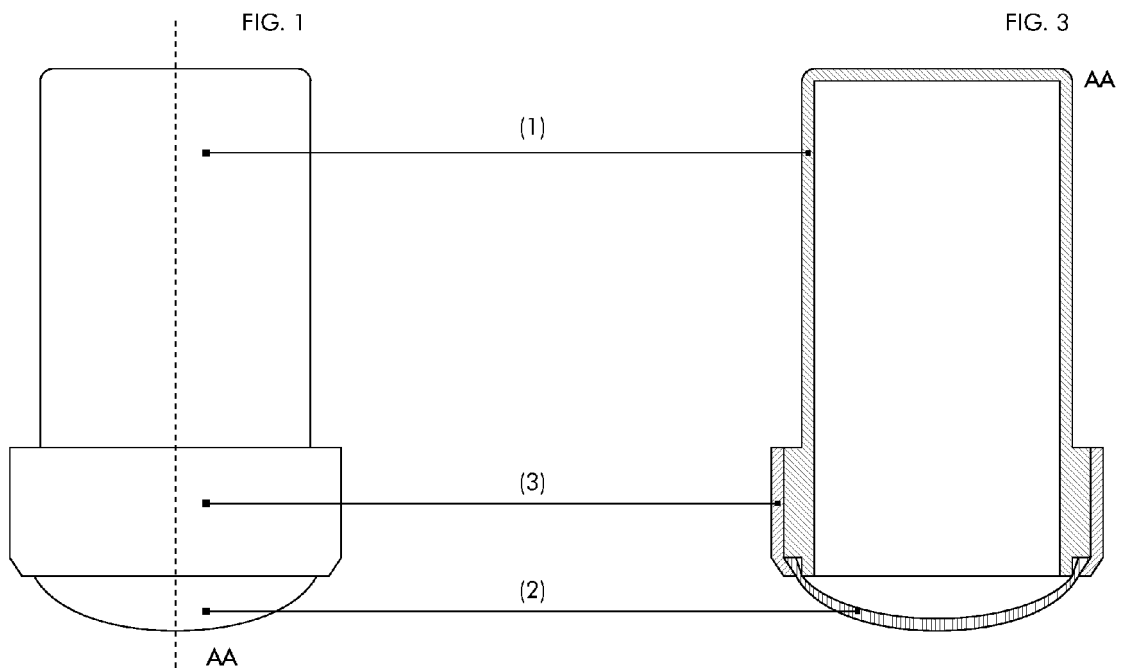
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## Claims

1. A stamp for non-flat surfaces containing a case(1) and a template(2), **characterised in that** the edges of the template(2) are attached to the case(1) using a compression ring clamp(3). 30
2. A stamp according to Claim 1, **characterised in that** the angle  $\alpha$  of the bevel of the compression ring clamp(3) is from 20° to 90°, preferentially from 20° to 45°. 35
3. A stamp according to Claim 1 or 2, **characterised in that** the template(2) is composed of foamed polyolefin or foamed EVA. 40
4. A stamp according to any of Claims 1 to 3, **characterised in that** the diameter of the case A comprises at least 90% of the diameter B of the template(2). 45
5. A method of producing the spheroid shape of the printing template of the stamp, **characterised in that** it encompasses: 50
  - a) attachment of the case (1) and template(2),
  - b) compression of the template(2) onto the case (1) using the compression ring clamp(3). 55
6. A method according to Claim 5, **characterised in that** stage (a) encompasses the placement of the edge of the template (2) parallel to the side of the

case (1)cylinder.

7. A method according to Claim 5 or 6, **characterised in that** stage (b) encompasses the twisting, compressing or snapping shut of the compression ring clamp(3) onto the case(1).





## EUROPEAN SEARCH REPORT

Application Number  
EP 11 46 1514

| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | GB 527 960 A (BRITISH PATENT UTILITY COMPANY) 18 October 1940 (1940-10-18)<br>* page 1, lines 61-83; figures 1-3 *<br>-----                                            | 1                                                           | INV.<br>B41F17/30<br>B41K1/28           |
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| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Place of search<br><b>Munich</b>                                                                                                                                       | Date of completion of the search<br><b>17 November 2011</b> | Examiner<br><b>D'Incecco, Raimondo</b>  |
| <p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons<br/>.....<br/>&amp; : member of the same patent family, corresponding document</p> |                                                                                                                                                                        |                                                             |                                         |

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
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