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(54) **A retaining structure for the seal of detergent receptacle**

(57) A retaining structure preventing the movement of a seal (20), said retaining structure comprises a lug (131) configured on a cover (13) mating the shape of a detergent receptacle (10a), a groove (133) positioned at the perimeter of said lug (131) and wherein the seal (20) can be positioned, and at least one retaining member (132) configured around the lug (131) at said groove

(133). Said retaining member (132) having a surface, said seal (20) being located in use between said groove (133) and said surface, thereby preventing the seal (20) getting out of the groove (133) by contacting with the seal (20) with said surface.

The retaining structure is suitable for a detergent dispenser of a dishwasher.

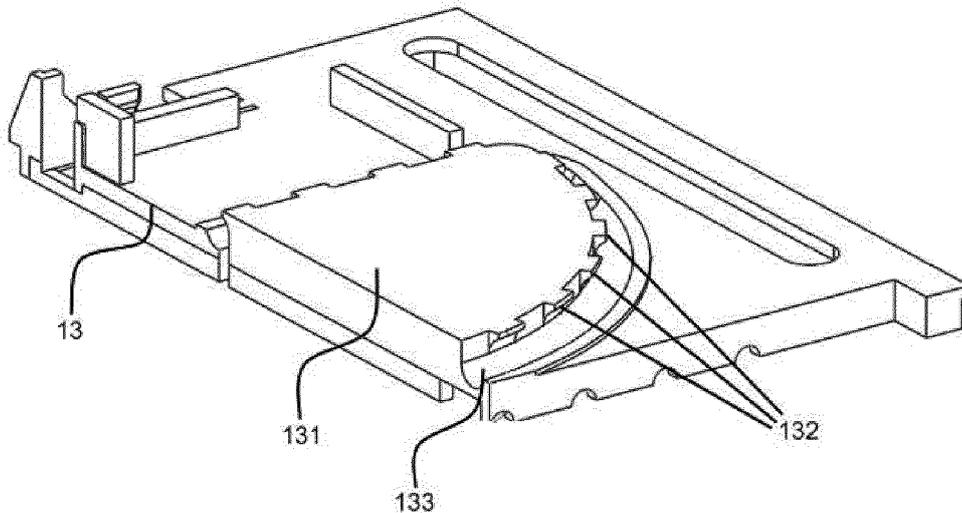


Figure 2

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Description**TECHNICAL FIELD**

[0001] The present invention is related to a retaining structure enabling the seal to be adapted on the section closing the detergent receptacle in detergent boxes.

[0002] The present invention is especially related to a retaining structure enabling the seal to be adapted on the section closing the detergent receptacle in detergent boxes of dish washers.

PRIOR ART

[0003] Dish washers comprise detergent boxes which are generally used by being adapted at the cover and dispensing the cleaning material therein into the washer by being opened at a determined time during the washing program.

[0004] Detergent boxes have receptacles where different kinds of materials are positioned. One of said receptacles is the detergent receptacle where detergent that will clean the objects to be washed is put. The detergent receptacle is opened at a desired time during the washing and the detergent therein circulates within the washer by being pushed with the water pressure. Therefore, hygiene of the objects to be cleaned is provided.

[0005] The washing program comprises several steps before dispensing the detergent in the washer. Meanwhile, the detergent receptacle is required to be completely isolated from the inside of the washer. Otherwise, if a leakage is experienced, the washing cannot be performed with desired performance. Therefore, seals are adapted on the section of detergent boxes which cover the detergent receptacle. The seal is a material such as gasket and the like, and surrounds the receptacle and prevents the detergent leakages into or from the detergent receptacle.

[0006] In the state of art, a groove and lugs extending outwards around said groove are configured during the production of detergent box in order to ensure the adaptation of seals onto the cover. After the seal is located into the groove, said lugs are melted by means of resistor and bended so as to hold the seal. Thus, the seal is prevented from getting out of the groove. However, bending the lugs as a second process causes difficulty of use. This situation especially causes the process period to be longer and the labor costs to be higher, in terms of serial production.

[0007] As a result, the above mentioned problems require making a development in the related technical field.

BRIEF DESCRIPTION OF THE INVENTION

[0008] In order to eliminate the above mentioned disadvantages and to offer new advantages in the related technical field, the present invention is related to a new retaining structure developed for the seals used in the

detergent receptacles of dish washers.

[0009] The primary object of the present invention is to disclose a retaining structure in order to adapt the seals on the cover of detergent receptacle in a practical manner.

[0010] In order to achieve all the objects mentioned above and to be understood from the detailed description below, the present invention is related to a retaining structure preventing the movement of seal by being used together with at least one detergent receptacle, an inner cover closing said detergent receptacle and a seal positioned so as to surround the detergent receptacle on said inner cover. Said retaining structure is characterized in that it comprises a lug configured on the inner cover in accordance with the form of detergent receptacle, a groove adjacent to said lug and configured so as to surround thereof, and where seal is positioned, and at least one retaining member configured around the lug so as to have an area enough for the seal to be located between said groove and thereof, and preventing the seal getting out of the groove by contacting with the seal through a sufficiently broad surface.

[0011] In order for the embodiment of the present invention to be better understood together with the additional members and advantages thereof, it is required to be evaluated with the figures described below.

BRIEF DESCRIPTION OF THE FIGURES**[0012]**

Figure 1 is the cross-sectional view of a cleaning box assumed to be used with the retaining structure according to the present invention.

Figure 2 is the view of the inner cover where the retaining structure according to the present invention is formed.

Figure 2 is the view of retaining structure according to the present invention together with the seal.

REFERENCE NUMERALS**[0013]**

10	Cleaning Box
10a	Detergent Receptacle
12	Outer Cover
13	Inner Cover
131	Lug
132	Retaining Member
133	Groove
20	Seal

DETAILED DESCRIPTION OF THE INVENTION

[0014] In this detailed description, the novelty accord-

ing to the present invention is only described for the subject to be understood better by way of examples, without any limiting effect. Accordingly, a retaining structure developed to be used in the cleaning boxes of dish washers is described in the description and figures below. However, said retaining structure can be used with different apparatuses, with small changes that will be made thereon.

[0015] Figure 1 is the cross-sectional view of a cleaning box (10) assumed to be used with the retaining structure according to the present invention. Accordingly, the cleaning box (10) generally comprises a detergent receptacle (10a) where the detergent is put, an inner cover (13), and an outer cover (12) that is in contact with said inner cover (13) and serves as a closer for the entire cleaning box (10).

[0016] Figure 2 is the view of the inner cover (13). Accordingly, a lug (131) configured on the section of inner cover (13) which closes the detergent receptacle (10a) so as to have a form in line with the detergent receptacle (10a), retaining members (132) configured around said lug (131) at certain distances so as to preferably have semi-C form, and a groove (133) adjacent to the lug (131) and configured so as to surround thereof.

[0017] A seal (20) complying with the diameter of the groove (133) is positioned into said groove (133). When said seal (20) is positioned into the groove (133), it contacts with all retaining members (132) through the inner surface of semi-C form. The contact surfaces of retaining members (132) are configured so as to have broadness that will enable holding the seal (20) during the back and forth motion of the cover and preventing thereof from getting out of the groove (133).

[0018] The retaining members (132) according to the present invention are formed during the production of the inner cover (13), serves as preventer for the seal (20) without requiring any additional process after the seal (20) is positioned into the groove (132), and prevents the seal (20) from getting out of the groove (133).

- a groove (133) adjacent to said lug (131) and configured so as to surround thereof, and where seal (20) is positioned, and
 - at least one retaining member (132) configured around the lug (131) so as to have an area enough for the seal (20) to be located between said groove (133) and thereof, and preventing the seal (20) getting out of the groove (133) by contacting with the seal (20) through a sufficiently broad surface.

2. A retaining structure according to Claim 1, **characterized in that** the retaining members (132) are configured at certain distances around the lug (131).
3. A retaining structure according to Claim 1, **characterized in that** the retaining members (132) are configured in semi-C form that will enable to grasp the seal (20) through some of retaining members.

Claims

1. A retaining structure preventing the movement of the seal (20) by being used together with;

- at least one detergent receptacle (10a),
- an inner cover (13) closing said detergent receptacle (10a), and
- a seal (20) positioned on said inner cover (13) so as to surround the detergent receptacle (10a),

characterized in comprising;

- a lug (131) configured on the inner cover (13) in accordance with the form of detergent receptacle (10a),

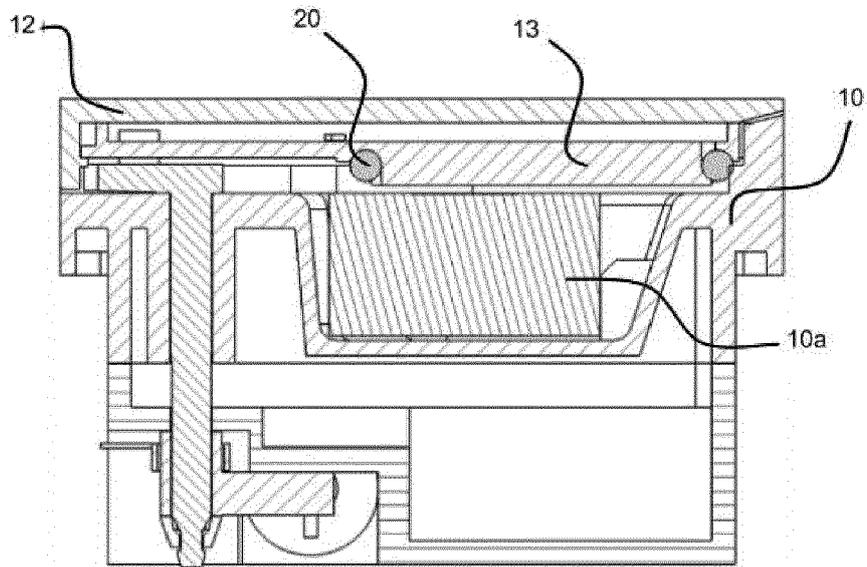


Figure 1

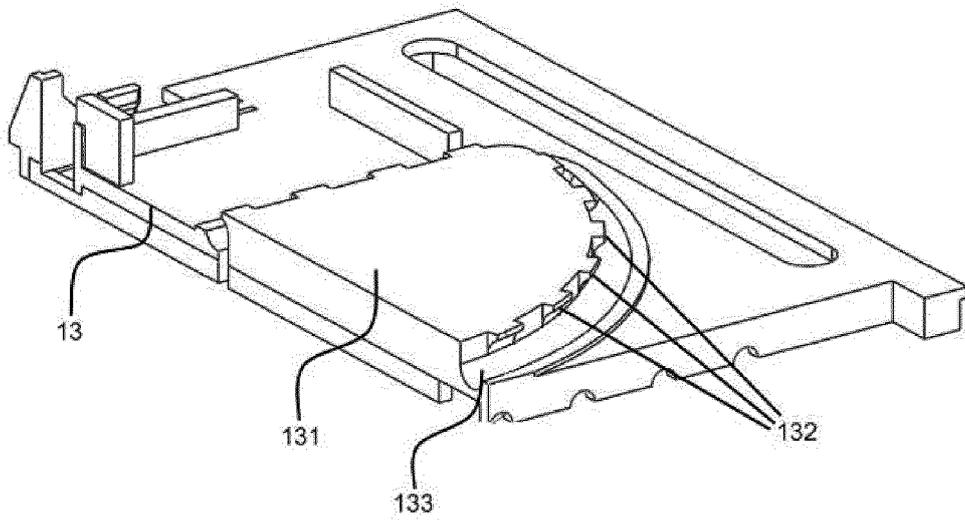


Figure 2

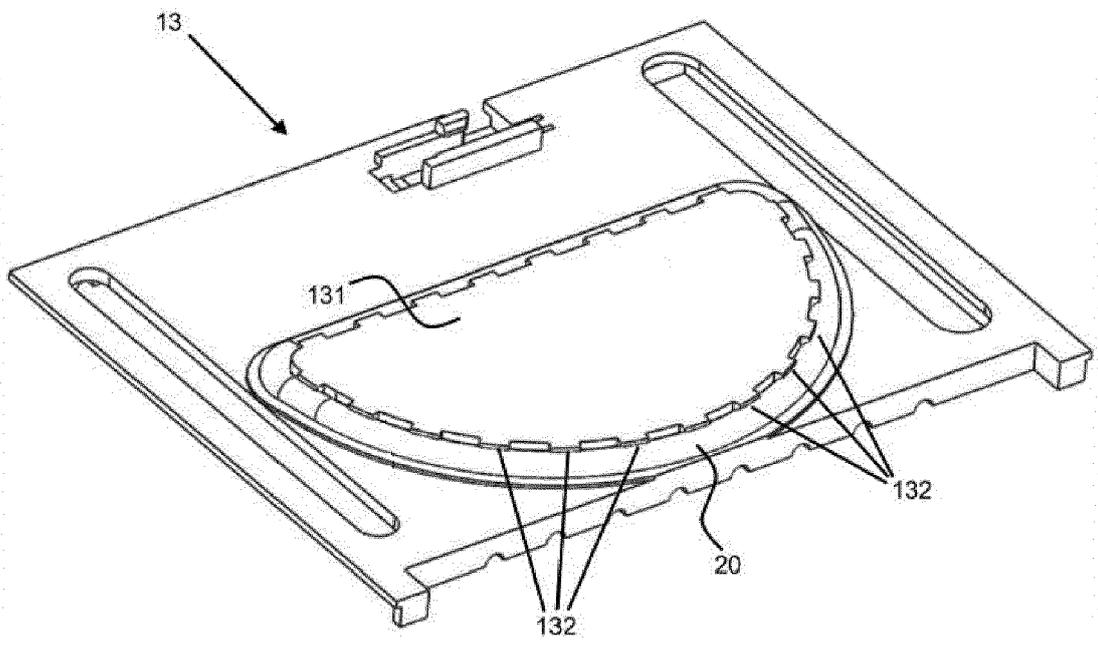


Figure 3



EUROPEAN SEARCH REPORT

Application Number
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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,P	Anonymous: "LG 4924FD2123E Dispenser", 17 February 2014 (2014-02-17), XP055102621, Retrieved from the Internet: URL:https://www.encompassparts.com/item/6692146/LG/4924FD2123E/Dispenser [retrieved on 2014-02-17] * the whole document *	1-3	INV. A47L15/44
L	Anonymous: "LG LDF6920ST Support: Find Manuals & Warranty Info LG USA", 5 July 2012 (2012-07-05), XP055102606, Retrieved from the Internet: URL:http://www.lg.com/us/support-product/1g-LDF6920ST# [retrieved on 2014-02-17] * pages 1,15 *		
Y	US 2012/279978 A1 (DA PONT PAOLO [IT] ET AL) 8 November 2012 (2012-11-08) * paragraphs [0001], [0022], [0031]; figures 4-6 *	1,3	TECHNICAL FIELDS SEARCHED (IPC) A47L
Y	US 2003/098550 A1 (GROH WILLIAM S [US] ET AL) 29 May 2003 (2003-05-29) * figures 2,3a *	1,3	
Y	DE 10 2011 006791 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 11 October 2012 (2012-10-11) * paragraphs [0001], [0035]; figure 1 *	1,3	
A	JP H07 239035 A (NOK CORP) 12 September 1995 (1995-09-12) * abstract; figures *	1	
----- -/--			
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 1 April 2014	Examiner Uhlig, Robert
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	

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EUROPEAN SEARCH REPORT

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EP 13 19 9373

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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)
A	DE 20 2006 010534 U1 (LEHNHOFF HARTSTAHL GMBH & CO K [DE]) 7 September 2006 (2006-09-07) * paragraphs [0032], [0037]; claims 1,2,6; figure 6 *	1	
A	JP S58 106261 A (AIDA ENG LTD) 24 June 1983 (1983-06-24) * abstract *	1	
A	DE 79 33 519 U1 (.) 6 March 1980 (1980-03-06) * page 7, paragraph 2; claim 1; figure 1 *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 1 April 2014	Examiner Uhlig, Robert
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	

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ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 13 19 9373

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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 The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

01-04-2014

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2012279978 A1	08-11-2012	CN 102665521 A	12-09-2012
		EP 2506751 A2	10-10-2012
		KR 20120117804 A	24-10-2012
		US 2012279978 A1	08-11-2012
		WO 2011067724 A2	09-06-2011
US 2003098550 A1	29-05-2003	US 2003098550 A1	29-05-2003
		US 2004100039 A1	27-05-2004
DE 102011006791 A1	11-10-2012	NONE	
JP H07239035 A	12-09-1995	NONE	
DE 202006010534 U1	07-09-2006	NONE	
JP S58106261 A	24-06-1983	NONE	
DE 7933519 U1	06-03-1980	NONE	

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EPO FORM P0459

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