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(54) **A detergent receptacle having curvilinear contact surface**

(57) The present invention is related to a detergent box (10) comprising a detergent receptacle (11) and a receptacle cover (12) opening and closing by sliding backwards and forwards and having a seal (121) thereon, which is configured so as to have a form complying with the detergent receptacle (11). The detergent receptacle

(11) of said detergent box comprises a contact surface (111) with curvilinear form, which is configured in such a manner that seal (121) will be in minimum contact during the back and forth motion of said receptacle cover (12) and when the receptacle cover (12) is closed, seal (121) will be in dominating contact.

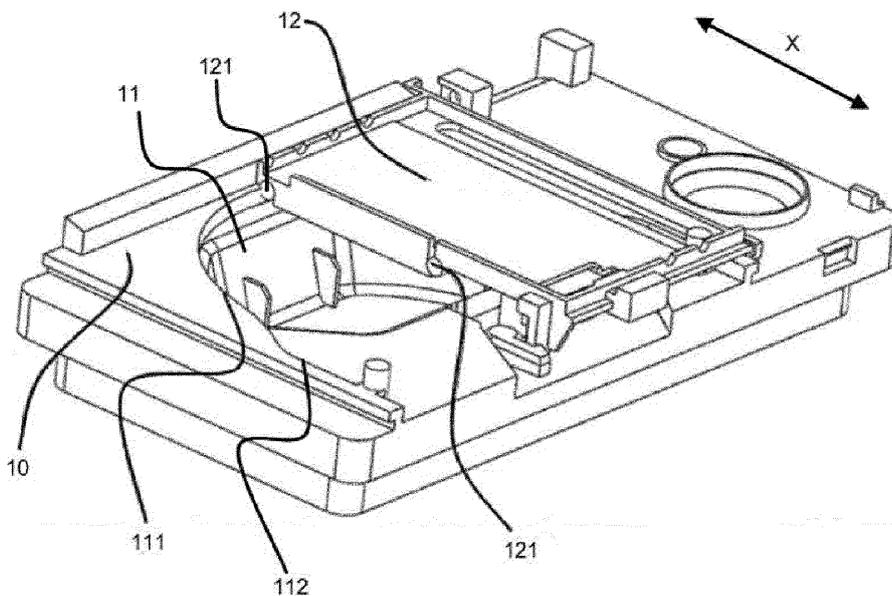


Figure 1

EP 2 749 198 A1

Description**TECHNICAL FIELD**

[0001] The present invention is related to ensuring sealing in the detergent boxes with sliding cover, which are used in dish washers and prolonging the service life of seal.

PRIOR ART

[0002] 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.

[0003] Detergent boxes comprise at least one receptacle where cleaning material is put and a cover connected with said receptacle. The covers of detergent boxes used in the state of art generally open and close by performing an angular motion around the section where receptacle connection is ensured. However, these kinds of covers cannot ensure the required sealing due to their natures. The gasket surface is damaged and crushed during the closing motion of the cover. Therefore, the gasket cannot fulfill its sealing function after a certain time.

[0004] Detergent boxes having sliding cover mechanism are present in the state of art. The detergent boxes having said kinds of cover mechanism comprise square detergent receptacles. This situation causes the seal which is connected on the cover so as to surround the receptacle for ensuring the sealing of detergent receptacle during opening and closing of the cover, to contact with the receptacle wall of the seal constantly. Said contact causes the deformation of the seal as a result of oncoming uses. Therefore, the user is required to replace the seal at certain intervals. Thus, additional costs occur and the user cannot use the device for a certain period. As a result, the above mentioned problems have required making a development in the related technical field.

BRIEF DESCRIPTION OF THE INVENTION

[0005] 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 sliding-cover detergent box having curvilinear detergent receptacle.

[0006] The primary object of the present invention is to disclose a detergent receptacle with a new form so as to ensure sealing in the detergent boxes with sliding cover.

[0007] Another object of the present invention is to disclose a new-formed detergent receptacle in order to enable the seal positioned on the cover to be exposed to less friction during the back and forth motion of the cover, and thus to prolong the usage period of the seal.

[0008] 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 detergent box comprising a detergent receptacle and a receptacle cover opening and closing by sliding backwards and forwards and having a seal thereon, which is configured so as to have a form complying with the detergent receptacle. Said detergent box is characterized in that it comprises a contact surface with curvilinear form, which is configured in such a manner that seal will be in minimum contact during the back and forth motion of said receptacle cover and when the cover is closed, seal will be in dominating contact.

[0009] A preferred embodiment of the present invention comprises extensions along said contact surface, which are configured in a broader manner than the contact surface so that the cover cannot be in contact during its movement.

[0010] In order for the embodiment of the present invention to be understood better, together with the additional members and advantages thereof, the present invention is required to be evaluated with the figures described below.

BRIEF DESCRIPTION OF THE FIGURES**[0011]**

Figure 1 is the view of exemplary detergent box comprising detergent receptacle according to the present invention.

Figure 2 is the top view of the contact surface together with the seal.

REFERENCE NUMERALS**[0012]**

10 Detergent Box

11 Detergent Receptacle

111 Contact Surface

112 Extension

12 Receptacle Cover

121 Seal

X: Movement direction of the receptacle cover

DETAILED DESCRIPTION OF THE INVENTION

[0013] In this detailed description, the novelty according to the present invention is only described for the subject to be understood better, without any limiting effect. Accordingly, a development made in the detergent re-

ceptacles of dish washers is described in the description and figures below. However, said detergent receptacle can be used with different devices thanks to changes that will be made.

[0014] Figure 1 is the view of exemplary detergent box (10) comprising detergent receptacle (11) according to the present invention. Accordingly, the detergent box (10) comprises a receptacle cover (12) serving as closure for detergent receptacle (11) and opening and closing by moving backwards and forwards in the direction X. A seal (121) is connected onto the inner surface of said cover (12), which faces the inside of the receptacle (11).

[0015] The detergent receptacle (11) according to the present invention is characterized in comprising a contact surface (111) with curvilinear form. Therefore, said seal (121) is connected onto the cover (12) so as to comply with said curvilinear form. In a more detailed description, when the cover (12) is closed so as to fully cover the receptacle (11), the seal (121) contacts with the whole of said contact surface (111) without space. Along the contact surface (111), extensions (112) that are configured so as to be broader than the contact surface (111) are provided.

[0016] Thanks to the form of said extensions (112), when the cover (12) is moved forwards in the direction X in order to be closed or is moved backwards in the direction X in order to be opened, the seal (121) does not contact with any surface except contact surface (111). Besides, the contact between the contact surface (111) and seal (121) is minimized. In a more detailed description, as the contact surface (111), and thus the seal (121) are configured in curvilinear form, the seal (121) contacts with the contact surface (111) through the minimum point during the back and forth motion of the cover (12) in the direction X. Friction is decreased by minimizing the contact there between during the movement of the receptacle cover (12), thereby prolonging the service life of the seal (121).

[0017] Again, thanks to the compatible curvilinear forms of contact surface (111) and seal (121), when the cover (12) is fully closed, the seal (121) contacts with the whole of the contact surface (111). When the receptacle cover (12) is fixed in closed position, the seal (121) remains in contact with the contact surface (111) by applying pressure thereon. In the meantime, as absolute contact is achieved between the seal (121) and the contact surface (111), sealing of the detergent receptacle (11) is ensured.

Claims

1. A detergent box (10) comprising a detergent receptacle (11) and a receptacle cover (12) opening and closing by sliding backwards and forwards and having a seal (121) thereon, which is configured so as to have a form complying with the detergent receptacle (11), **characterized in that** detergent box is

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characterized in that detergent receptacle (11) comprises a contact surface (111) with curvilinear form, which is configured in such a manner that seal (121) will be in minimum contact during the back and forth motion of said receptacle cover (12) and when the receptacle cover (12) is closed, seal (121) will be in dominating contact.

2. A detergent box (10) according to Claim 1, **characterized in** comprising extensions (112) along said contact surface (111), which are configured in a broader manner than the contact surface (111) so that the receptacle cover (12) cannot be in contact during its movement.

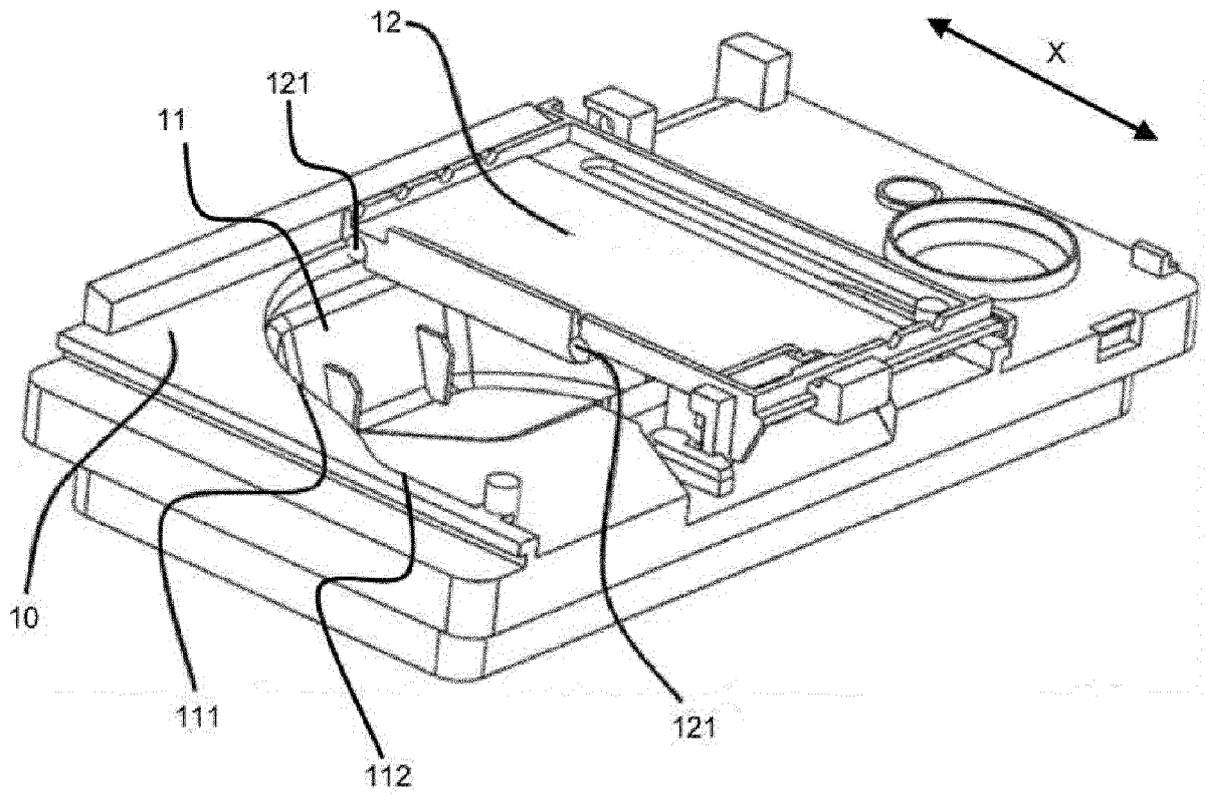


Figure 1

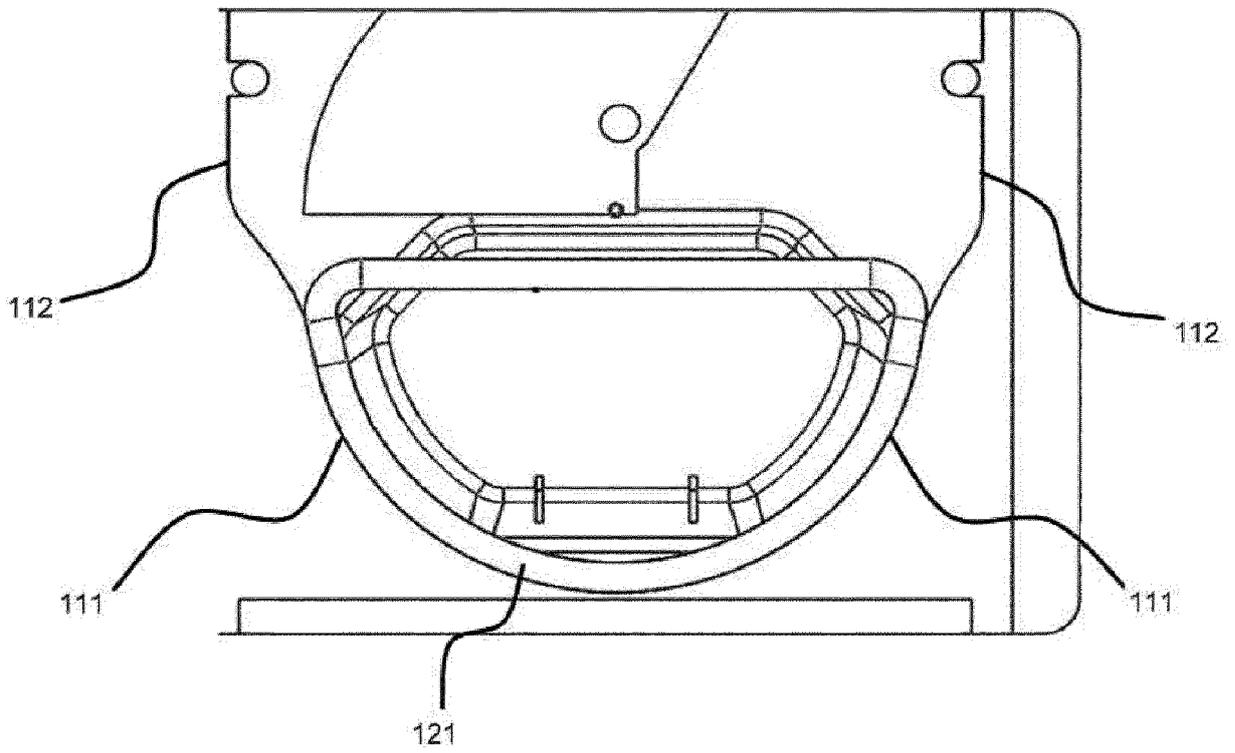


Figure 2



EUROPEAN SEARCH REPORT

Application Number
EP 13 19 3619

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2011/063942 A1 (AWECO APPLIANCE SYS GMBH & CO [DE]; JANS GEROLD [DE]; BOETTGER ULRICH) 3 June 2011 (2011-06-03) * page 10 - page 15; figures 1-10 * -----	1,2	INV. A47L15/44
X	WO 03/045214 A2 (ELTEK SPA [IT]; CERRUTI DANIELE [IT]; NEBBIA FABIO [IT]; MUSSO FRANCO) 5 June 2003 (2003-06-05) * page 5, line 23 - page 18, line 18; figures 5-21 * -----	1,2	
X	EP 1 704 811 A2 (AWECO APPLIANCE SYS GMBH & CO [DE]) 27 September 2006 (2006-09-27) * paragraphs [0025], [0032] - paragraph [0038]; figures 1-4 * -----	1,2	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			A47L
Place of search		Date of completion of the search	Examiner
Munich		13 March 2014	Beckman, Anja
CATEGORY OF CITED DOCUMENTS		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	
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			

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

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