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(54) **Appararatus for creating a vacuum in containers for the preservation of foodstuffs**

(57) The invention concerns a device to form a vacuum in flexible containers such as bags or rigid containers such as vessels or canisters, for vacuum-packed products. It comprises a plate or tray base and an upper body separably connected and where the upper body encloses a suction group, contains a heat sealing bar and means for commanding the functions of the device and is movable between a raised open position and a lowered closed position of the device. The plate or tray base (21) has at least a positioning or guide means (28, 39) of the mouth of said flexible container, means (36, 38) interacting with a seal (32) on the lower face of the upper body (22) forming a suction chamber (35), and a profiled seal (27) mating with the heat sealing bar (31) of said upper body when the device is closed.

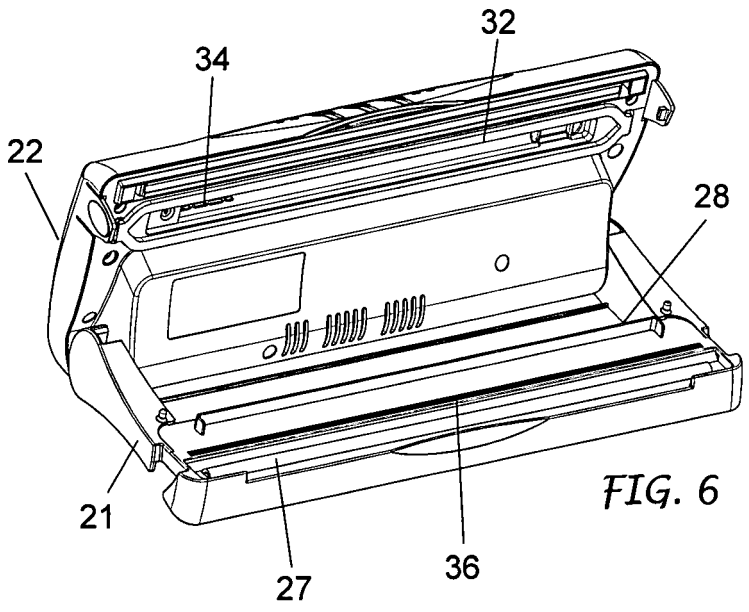

FIG. 6

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Description

Field of the Invention

[0001] This invention concerns the appliances to create a vacuum in containers for the preservation of vacuum-packed products, containers which can be flexible such as bags or rigid such as vessels or canisters, and to seal the containers when they are flexible.

State of the Technique

[0002] At present, to create a vacuum in containers such as those mentioned above there are apparatus available that basically comprise: a body; a cover or lever movable as regards to the body between an open and closed position; a suction chamber between the body and the cover to receive the mouth of a bag; a suction pressure device pneumatically connected to said chamber to suck the air out of the bag to create a vacuum when the cover or lever is in the closed position; and a heat sealing bar to seal the mouth of the bag to preserve the vacuum condition.

[0003] Usually, the body of such appliances also acts as a base and encloses the suction pressure device, whereas the cover or lever is hinged to the body, moving above the latter, and can be equipped with means to block it when closed and has a front area with control means and display of the vacuum, a discharge valve and possibly a connection in communication with the suction pressure device to connect a suction tube to it to create a vacuum in rigid containers equipped with an appropriate cover.

[0004] An appliance to create a vacuum in containers and seal them for the preservation of vacuum- packed foodstuffs was also proposed, which is made up basically of a base plate or tray forming at least a part of a suction chamber, and of a body, that forms a remaining part of said chamber and that encloses a suction group and comprises a heat sealing bar and command means of the functions of the appliance. Such body is associated with the base plate or tray and movable above the latter between an open and a closed position of the suction chamber and the upper body is also removable from the plate or tray to allow the latter, that is the plate or tray, to be washed without involving the body enclosing the suction pressure device and on the whole the electric components.

[0005] In addition, in the lower component of the appliances according to the known technique, that is the base, usually coincident with it, is a basin in which potential liquid substances released by the product to be packed and coming out of the mouth of the bag before and during the suction operation, can be collected.

Object and Summary of the Invention

[0006] The object of this invention is to provide an appliance for creating a vacuum of the type with a plate or tray base separable from the above upper body that holds a suction unit, a heat- sealing bar and the device's function commands, but without a basin and equipped with means to simplify its construction and ensure its functionality and reliability..

[0007] Such an objective is achieved with an apparatus to create a vacuum in containers and seal them when flexible, conforming at least to claim 1; other preferred characteristics appear in the dependent claims.

[0008] In other words, in the apparatus according to this invention the base plate or tray no longer has a basin in line or coincident with the suction chamber but, if present, the basin is moved parallel away from said chamber, to the rear of the plate or tray, and as regards to said chamber there are other functional means for the positioning and preventing the loss of liquid from the mouth of the bag during the suction phase.

Brief description of the drawings

[0009] Further details of the invention will become evident from the description which follows made in reference to the enclosed indicative and not limiting drawings, in which:

Fig. 1 shows a view in perspective of a device in an open position according to a method of construction;
Fig. 2 shows a view in perspective of only the plate or tray base of the device in Fig. 1;
Fig. 3 shows an end view of the device open in Fig. 1;
Figs. 4 and 5 show, respectively, an end view and a cross section of the device in Fig. 1, but closed;
Fig. 6 shows a view in perspective of a device in an open position according to another method of construction;
Fig. 7 shows a view in perspective of only the plate or tray base of the device in Fig. 6;
Fig. 8 shows an end view of the device open in Fig. 6;
Figs. 9 and 10 show, respectively, an end view and a cross section of the device in Fig. 6, but closed;
Fig. 11 shows a view in perspective of only the base plate or tray for the fitting of a device according to another method of construction;
Fig. 12 shows a cross section of a closed device incorporating the plate or tray in Fig. 11.
Fig. 13 shows a view in perspective of a device in an open position according to a further method of construction;
Fig. 14 shows a view in perspective of only the base plate or tray of the device in Fig. 13;
Fig. 15 shows an end view of the device open in Fig. 13; and
Fig. 16 shows a cross section of the device, but closed.

Detailed description of the Invention

[0010] In each of its different embodiments, the apparatus for creating a vacuum proposed herein comprises a base plate or tray 21 and an upper body 22.

[0011] In its rear part, the plate or tray 21 is provided with a pair of lugs 23 each having a saddle type seat 24 accessible from the top to bottom by means of an opening 25..

[0012] The upper body 22 has two pins from two opposite sides, - not shown- designed to connect through the openings 25, with the saddle type seats 24 of the lugs of the base plate or tray 21 so that said body can turn between a lowered closed position on the plate or tray and a raised open position and that, furthermore, it can be separated from the plate or tray itself.

[0013] According to the embodiment in Figs.1-5, on its top face, near the front side, the plate or tray 21 has a groove 26 housing a profiled seal 27 and in parallel, on the back of the same, a transversal ledge 28, around all of which is assembled a first seal 29.

[0014] The ledge 28 can extend upwards from the bottom of a groove or from the top surface of the plate or tray until it exceeds in height the plane of the seal 29 that surrounds

[0015] The plate or tray 21 can in addition be equipped with lateral recesses 30 acting as gripper handles and/or a front grip.

[0016] On the lower face of the body 22, parallel to its front side are mounted a heat-sealing bar 31 and, on the back of this, a second seal 32 specular with regards to the first seal 29 held by the plate or tray 21.

[0017] The upper body 22 is also configured to enclose the usual functional components of the device generically indicated by 33 in Fig. 5, such as a suction pump operated by a motor, the electric feed and control components of the functions of the device, plus the suction ducts starting from a facing suction opening 34 positioned inside an opening formed by the second seal 32.

[0018] When the body 22 is lowered in the closed position on the plate or tray 21, the second seal 32 rests against and match with the first seal 29, forming between them a suction chamber 35 -Fig. 5- that communicates with the vacuum pump by means of the suction opening 34.The transversal reference ledge 28 then extends in said chamber 35, while the heat-sealing bar 31 matches with the profiled seal 27 on the base plane or tray 21.

[0019] The apparatus can be used in the usual way by placing the mouth of a bag containing the product to be preserved against the reference ledge 28 in the suction chamber 35 between the plate and tray base and upper body and by starting the suction and heat-sealing functions once the upper body is closed on the plate or tray base.

[0020] To manage the start of the apparatus, between the base plate or tray and the upper body, for example, means to enable the start of the suction cycle of the device only when it is closed and to start the heat-sealing function after the vacuum has been created in the bag can be provided.

[0021] According to the embodiment shown in Figs. 6-10, in which the same reference numbers are used to indicate the similar or analogous parts as those already used to describe in Figs. 1-5, and where the upper body 22 shows no appreciable variation, on the upper plane of the plate or tray 21 a profiled seal 27 and a reference ledge 28 parallel between them are provided, with the addition of a linear seal 36 positioned parallel between those two elements 27, 28. Furthermore, in the rear part of the plate or tray 21, in a lower position with regards to the upper plane, a basin 37 is provided to collect any potential substances released by the product during the packing phase and which can then be removed when the plate or tray are washed.

[0022] Also in this case, the ledge 28 acts as a reference for the positioning of the mouth of a bag that contains the product to be preserved, and when the device is closed the linear seals 32 on the upper body 22 interact both with the linear seal 36 and with the upper surface of the plate or tray base as shown in Fig. 10, forming as suction chamber 35 to remove the air from the mouth of the bag to create a vacuum in the latter.

[0023] In the embodiment shown in Figs 11 and 12, given that the structure and configuration of the upper body 22 are the same, the base plate or tray 21 has, in its upper part, parallel from the front towards the rear, a profiled seal 27, a potential gripper rib 38 to hold the mouth of the bag, and a transversal rib 39 acting as a locator or guide of the mouth of said container or bag and having some interruptions or openings 40 for a downflow of any liquids from the upper plane of the to the rear collection basin 37.

[0024] In this case, the seal 32 supported by the upper body 22 rests directly on the upper surface of the plate or tray base 21 forming the suction chamber 35, while the transversal rib 39 is within the range of said chamber, as shown in Fig. 12.

[0025] Lastly, in the embodiment shown in Figs- 13-16, given again the structure and configuration of the upper body 22, the base plate or tray 21 is like the one in Figs. 6 - 10 with the exception of the linear seal 36, which in this case is lacking, so it has a profiled seal 27, a reference rib 28 and a rear basin 37.

Claims

1. Apparatus to form a vacuum in flexible containers, such as bags, or rigid containers, such as vessels or canisters, for the preservation of vacuum-packed attaching means, comprising a base plate or tray (21) provided with a pair of lugs, an upper body (22), enclosing a suction group and holding a heat sealing bar and command means of the functions of the apparatus, where said plate or tray and the upper body are separably connected and with the upper body

movable between a raised open and lowered closed position of the apparatus, and where between said plate or tray base and said upper body a suction chamber (35) is proved to receive the mouth of a flexible type container and in communication with said suction group by means of a suction duct when the device is closed, **characterised in that** the plate or tray base (21) has at least a positioning or guide means (28, 39) of the mouth of a flexible container, means (36, 38) interacting with a seal (32) located at a lower face of the upper body (22) to form said suction chamber (35), and a profiled seal (27) mating with the heat sealing bar (31) of said upper body when the device is closed.

2. Apparatus according to claim 1, wherein said plate or tray (21) has, on its upper face, a groove housing the profiled seal (27) and in parallel, on the rear of the latter, a transversal ledge rib (28) provided to set the position of the container mouth with regards to the suction chamber, and a seal (29) positioned around said rib and designed to mate with the seal (32) of the upper body, forming the suction chamber when the device is closed.

3. Apparatus according to claim 2, wherein said ledge (28) extends upwards from the bottom of the groove or from the same upper face of the plate or tray until it exceeds in height the plane seal (29) that encloses it.

4. Apparatus according to claim 1, wherein said plate or tray (21) has, on its upper face in parallel, a groove housing the profiled seal (27), on the back of this a transversal ledge (28) provided to define the position of the mouth of the flexible container with regard to the suction chamber, and between said profiled seal and said rib ledge, a linear seal (32) on the upper body to define the suction chamber when the device is closed.

5. Apparatus according to claim 1, wherein said plate or tray (21) has in parallel, on its upper face, a groove housing the profiled seal (27), a gripper rib (38) to hold the mouth of the container with respect to the suction chamber, and a transversal rib (39) acting as a locator or guide of the mouth of said container provided with interruptions or openings (40) for a downflow of potential liquids.

6. Apparatus according to claim 1, wherein said plate or tray (21) has in parallel, on its upper face, a groove housing the profiled seal (27), and a transversal rib (39) provided to define the position of the mouth of the container with regards to the suction chamber.

7. Apparatus according to any of the previous claims, wherein said plate or tray has a collection basin portion in one of its rear parts in a lower position with regards to the upper face of the plate or tray.

8. Apparatus according to any of the previous claims, wherein the plate or tray has two end recesses forming lateral grip zones and/or front handles.

9. Apparatus according to any of the previous claims, comprising in addition means for a connection of the suction group in said upper body with the lid of a rigid container of a vase or a canister.

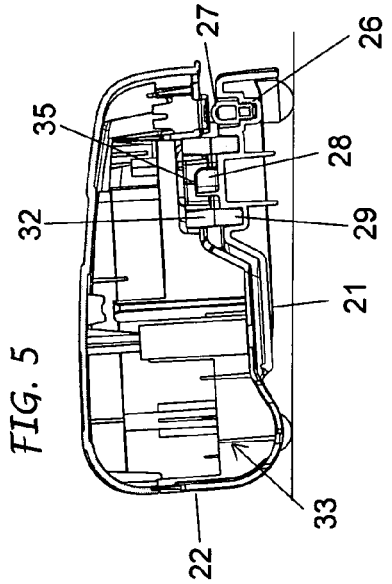

FIG. 5

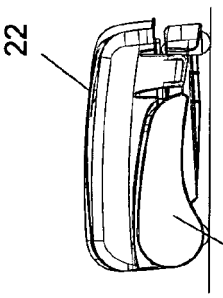

FIG. 4

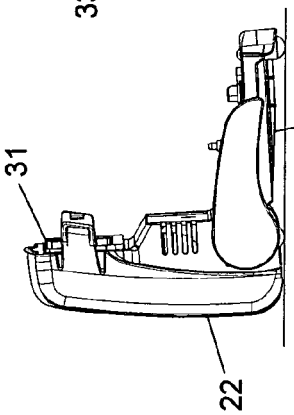

FIG. 3

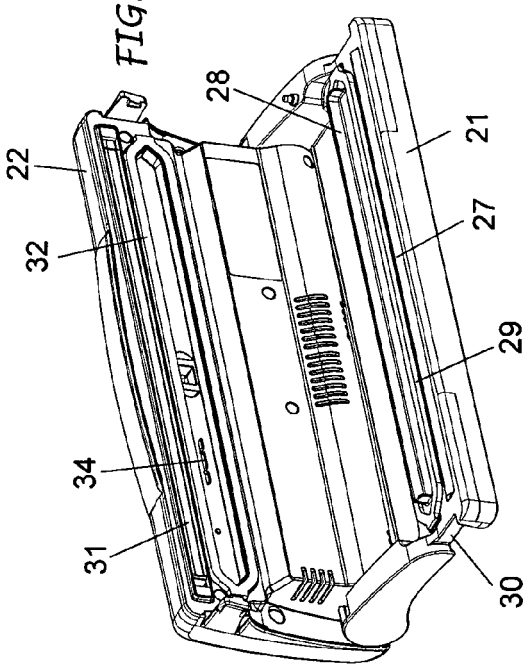

FIG. 1

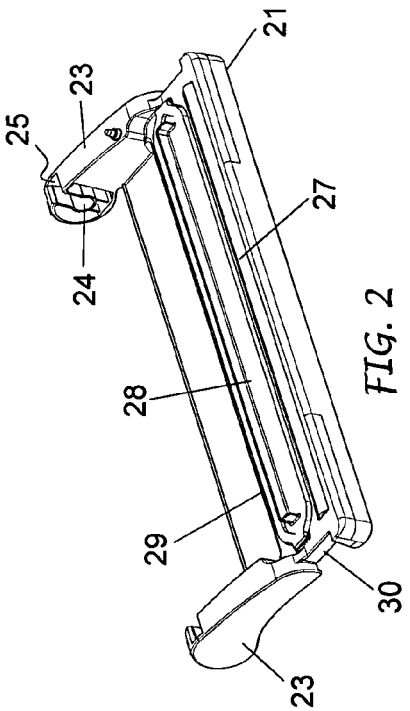

FIG. 2

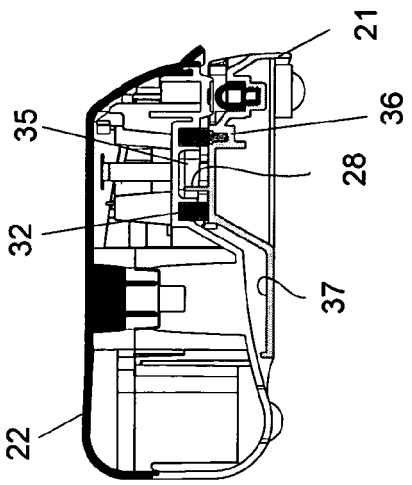

FIG. 10

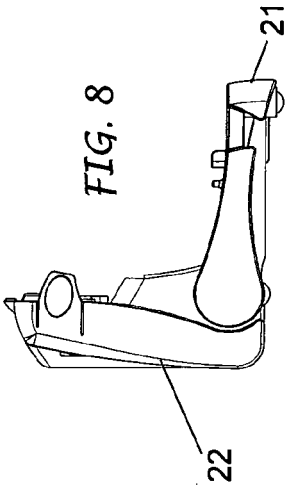

FIG. 8

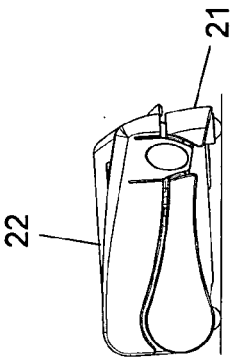

FIG. 9

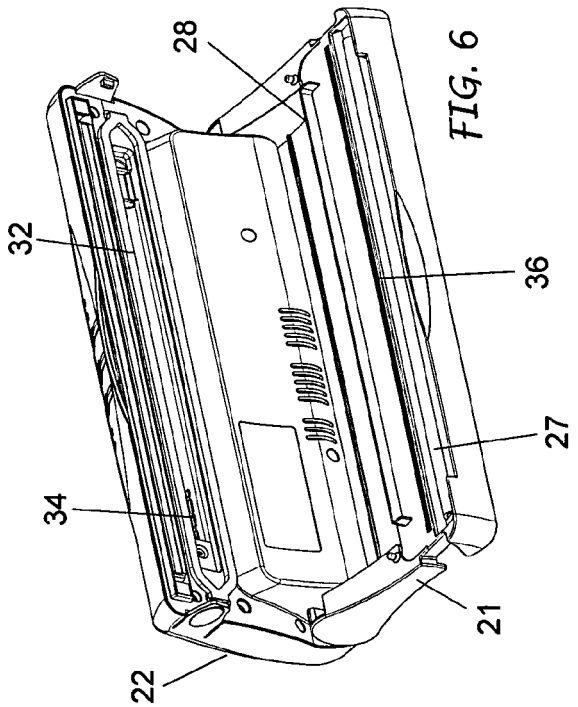

FIG. 6

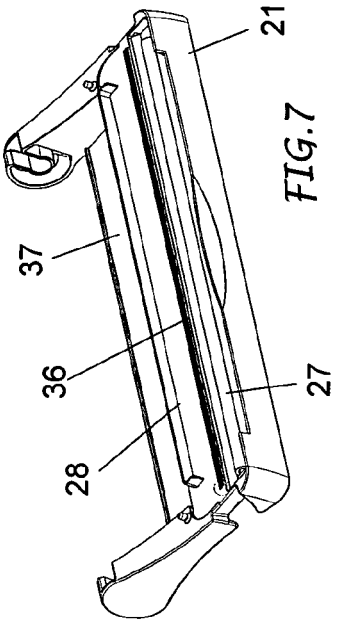

FIG.7

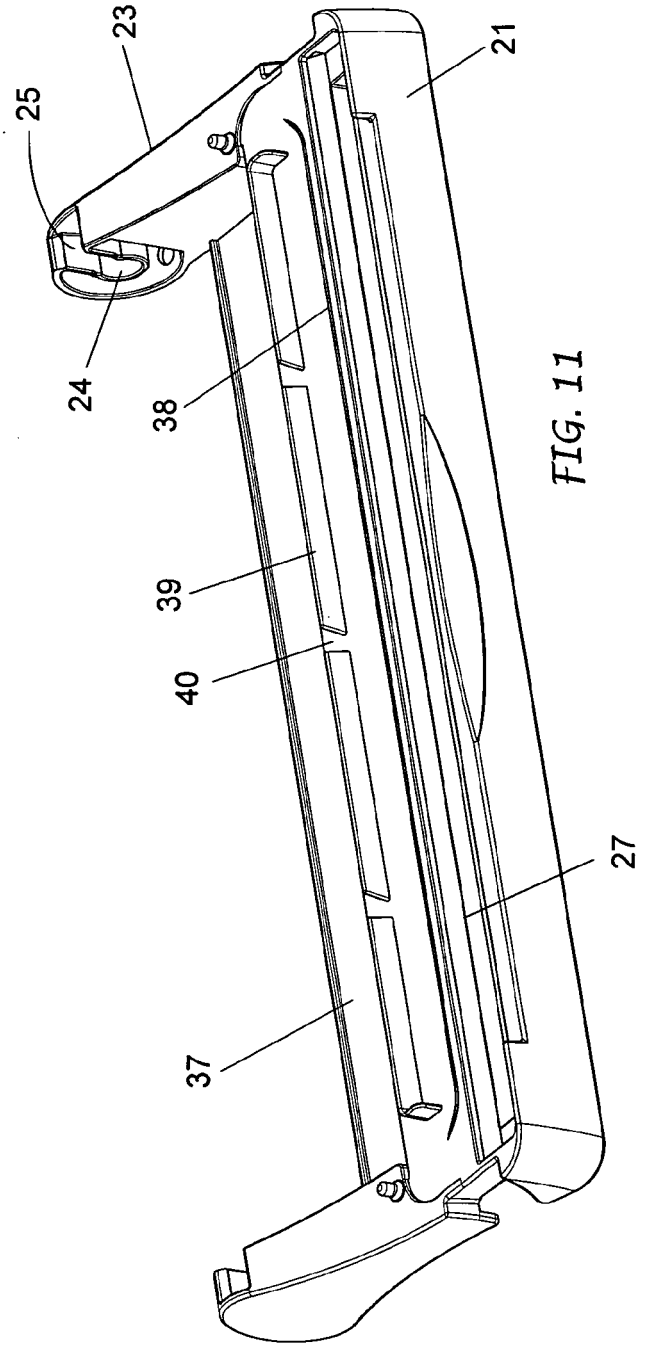

FIG. 11

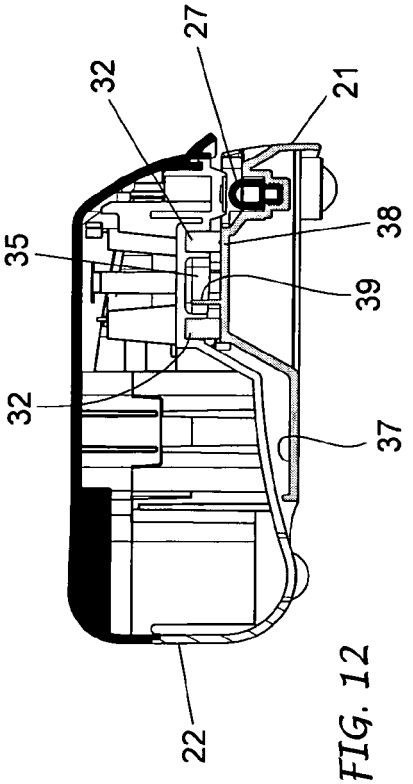

FIG. 12

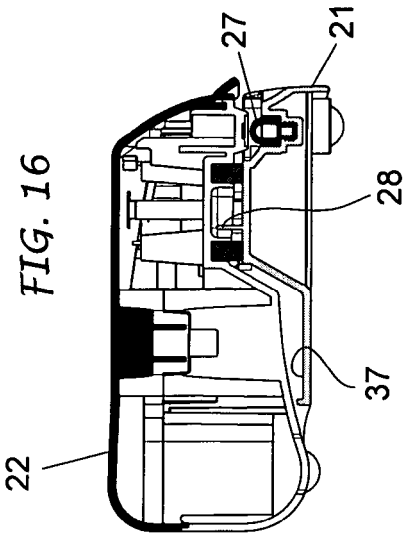

FIG. 16

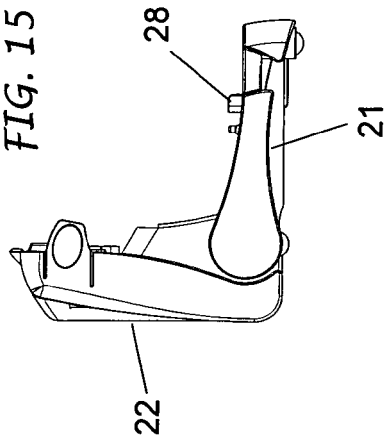

FIG. 15

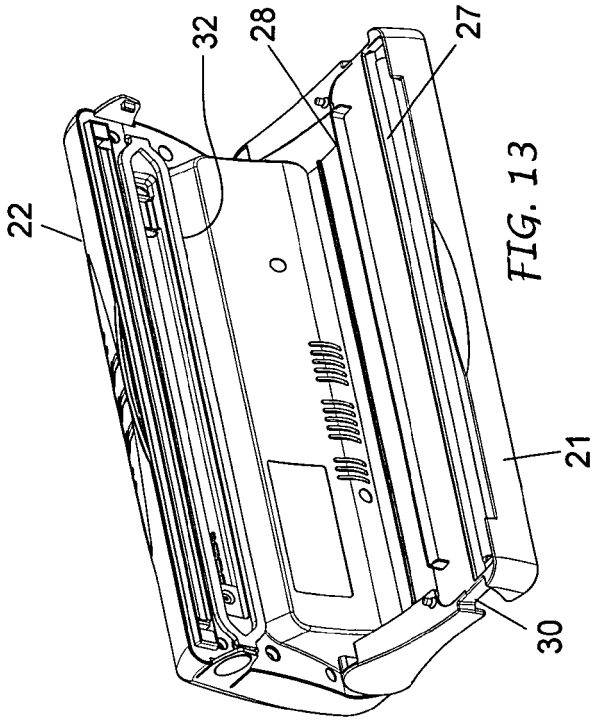

FIG. 13

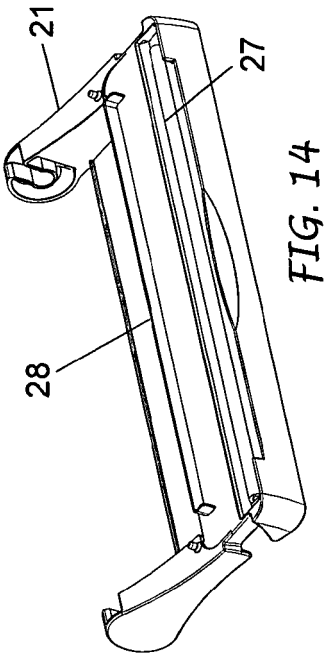

FIG. 14

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EUROPEAN SEARCH REPORT

Application Number
EP 08 42 5300

DOCUMENTS CONSIDERED TO BE RELEVANT

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TECHNICAL FIELDS SEARCHED (IPC)

B65B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	29 August 2008	Ungureanu, Mirela

CATEGORY OF CITED DOCUMENTS

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