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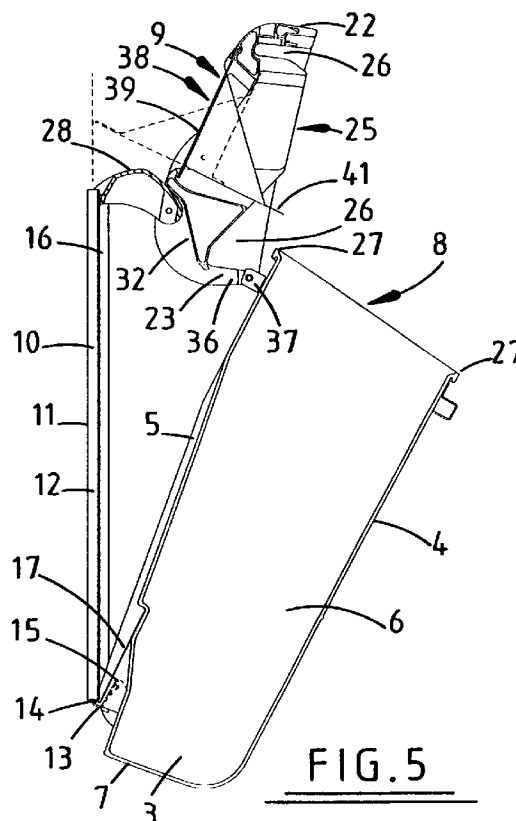
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(54) **A waste container**

(57) A waste container (1) comprises an upright receptacle (3) pivotally mounted on a support bracket (10) attached to a post or wall. The container has a lid (9) pivotally connected to the receptacle so that it is pivotal relative to an opening (8) of the receptacle between open and closed positions. A linkage (28) is provided between the lid and the support bracket so that pivotal movement of the lid to the open position causes pivotal movement of the receptacle relative to the support to a position inclined to the upright and the support bracket. This provides clear access to the receptacle opening to permit emptying. The linkage enables movement of the lid with mechanical advantage.



EP 0 811 565 A1

Description

The present invention relates to a waste container particularly, but not exclusively, to such a container for the disposal of dog excrement or other odorous or unsanitary waste in public places.

One known waste container for dog excrement comprises a receptacle pivotal between open and closed positions relative to a housing with a front opening. The housing is fixed to an upright post and has a top wall with a disposal chute closeable by a flap. In the closed position the receptacle is contained within and locked to the housing so that its opening is covered by the top wall of the housing and access is only possible via the flap. Waste material is disposed by lifting the flap and dropping it into the container so that it is carried by the chute into the receptacle lined by a refuse sack. When the receptacle is emptied the container is unlocked by an authorised person and the receptacle automatically rocks forward to expose the receptacle opening and to allow a full lining sack to be removed and a fresh sack fitted.

Once emptied the receptacle is pushed closed and is automatically locked to the housing. The receptacle may be fully removed from the housing to enable cleaning of both the receptacle and the chute.

It is an object of the present invention to provide an improved waste container.

According to the present invention there is provided a waste container comprising an upright receptacle pivotally mounted on a support and having a closure pivotally associated therewith, the closure being pivotal relative to an opening of the receptacle between open and closed positions, wherein pivotal movement of the closure to the open position causes pivotal movement of the receptacle relative to the support to a position inclined to the upright.

Conveniently a linkage is provided between the closure and the receptacle to permit movement of the closure between the open and closed positions with mechanical advantage. The linkage may comprise a link member that is pivotally connected at one end to the support and pivotally connected at the other end to the closure.

Preferably a rear wall of the closure is pivotally connected to a rear wall of the receptacle.

In the closed position the linkage is preferably unextended with the link member overlying the closure in which there may be a recess to receive the link member. In the open position the linkage is preferably extended with the link member and the rear wall of the closure spanning a clearance between an upper end of the receptacle and the upper end of the support, the clearance being present by virtue of the inclination of the receptacle to the upright.

In a preferred embodiment the link member is connected to a top wall of the closure at a position adjacent the rear wall of the closure.

The receptacle may conveniently act as a counter-

weight to the closure during movement of the closure between the closed and open positions.

The closure is preferably sealed to the receptacle in the closed position and may be recessed to receive an edge of the receptacle around the opening for this purpose. A seal may be provided in the recess.

The receptacle may be lined with a sack an upper end of which is clamped between the closure and the receptacle when the closure is in the closed position.

The receptacle may be removable from the support and the closure to permit cleaning and a quick-release connection between the receptacle and the closure may be provided to assist in removal. However, the receptacle may have a projecting member that engages with the support to prevent removal until disengaged with a release key.

The closure has a disposal aperture closeable with a pivotal flap which may be pivoted to expose a chute on which waste material may be deposited for disposal into the receptacle.

The closure is advantageously lockable to the receptacle in the closed position.

A specific embodiment of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a side view of a waste bin according to the present invention with support shown;

Figure 2 is a side view of the waste bin of figure 1 shown in a closed configuration but without support shown;

Figure 3 is a sectioned view of figure 2;

Figure 4 is a sectioned side view of the waste bin shown in a position intermediate open and closed positions;

Figure 5 is a sectioned side view of the waste bin shown in a fully open configuration;

Figure 6 is a scrap sectioned view of the rear base of the bin taken along a longitudinal centre line;

Figure 7 is a scrap section view of the rear base of the bin taken to one side of the centre line; and

Figure 8 is a perspective exploded view of the waste bin of figures 2 to 5.

Referring now to the drawings, in figure 1 there is shown a waste bin 1 fixed to a ground-mounted upright post 2. The bin 1 could alternatively be mounted to other structures such as a wall or other flat surface.

The waste bin 1 comprises a receptacle 3 having front, rear and side walls 4,5,6, a base 7 and a top opening 8 (hidden in figures 1 to 3) closeable by a lid 9. In figures 1, 2 and 3 the receptacle opening 8 is fully closed by the lid 9, whereas in figure 4 and 5 the receptacle 3 is respectively shown partially open and fully open. The lid 9 and receptacle 3 are mounted on the post 2 by means of a support bracket 10 that is fixed thereto.

The support bracket 10 has rear and side walls 11, 12 (seen clearly in figures 6 and 8) and is upturned at its bottom edge 13 to form a channel 14 in which a

moulded overhang 15 of the receptacle 3 is received (best seen in figure 7). The upturned bottom edge 13 is inclined outwardly and upwardly from the upright. The rear wall 11 has a central longitudinal V-shaped ridge 16 along its length (see figure 8).

The rear wall 5 of the receptacle 3 is inwardly stepped and tapered towards the base and it is here that the overhang 15 is positioned. The moulded overhang is in two parts separated by a recess in which a retaining tongue 17 (of spring steel or the like) having an upturned free end 18 is received (see figure 6). The overhang 15 is releasably received in the channel 14 and moveable pivotally therein so as to permit pivotal movement of the receptacle 3 relative to the support bracket 10 and post 2. The retaining tongue 17 is fixed to the rear wall 5 of the receptacle 3 and its upturned end 18 is releasably engageable under the bottom of the V-shaped ridge 16.

The lid 9 is formed from a double-walled plastics moulding and comprises a top wall 19 with arcuate front and rear portions 20,21 integrally connected to depending front and rear walls 22,23, opposed side walls 24 and an underside wall 25 which has a recess 26 designed to receive an upper edge 27 of the receptacle 3 around the opening 8. A compressive seal (not shown) is provided in the recess 26 to seal the upper edge 27 of the receptacle opening 8 to the lid 9.

The top wall 19 of the lid 9 is inclined upwardly and rearwardly towards the support post 2 and is connected to an end of the support bracket 10 by means of an arcuate link 28 that extends across a significant part of the width of the lid 9. The arcuate link 28 is pivotally connected at one end to the support bracket 10 by means of pins 29 that pass through bores 30 in the side walls 12 of the support bracket 10 and corresponding bores 31 in the arcuate link 28. A recess 32 is provided in the arcuate rear portion 21 between the top and rear walls 19,23 of the lid 9 to receive the arcuate link 28 when the lid 9 is in the closed position as shown in figures 1 to 3. The end of the arcuate link 28 distal from the support bracket 10 is connected to the top wall 19 of the lid 9 by means of a rod 33 that passes through a bore 34 in the arcuate link 28, the ends of the rod 33 being received in bores 35 provided in side walls of the recess 32.

A bottom edge 36 of the rear wall 23 of the lid 9 is pivotally connected to a mounting bracket 37 on the rear wall 5 of the receptacle 3, just below the opening 8.

A central region of the top wall 19 of the lid 9 has a substantially rectangular opening 38 closed by a planar flap 39 that is pivotally mounted on pins 40 fitted to the rear of the rectangular opening 38. Depending approximately perpendicularly from a rear edge of the flap 39 is an chute plate 41. A front part of the flap 39 has finger plates 42 that extend at each side to assist in manual manipulation of the flap 39. The side walls 24 of the lid 9 are arcuately recessed, as indicated at 43, below each finger plate 42 to enable easy access to the flap 39.

The front wall 22 of the lid 9 is fitted with a key-oper-

ated barrel lock 44 or the like by which the lid 9 may be locked to the receptacle 3 in the closed position.

The receptacle 3 is connected to the mounting bracket 37 by means of quick-release fasteners 45 that pass through apertures 46 provided in both the mounting bracket 37 and the receptacle 3. By rotating the fasteners 45 relative to the receptacle through a quarter turn they are able to move clear of the apertures 46 in the mounting bracket thereby releasing the upper end of the receptacle 3. The bracket 37 moves away from the quick release fasteners 45 which are retained on the rear wall 23. Complete removal of the receptacle 3 is thereafter possible by deflecting the retaining tongue 17 out of engagement from the underside of the ridge 16 on the support bracket 10. Once the receptacle 3 is removed it may be cleaned easily and access is provided to the lid 9 and flap 39 for cleaning or removal purposes.

The front wall 4 of the receptacle may have a surface 47 to which a panel 48 bearing information, identification data or an advertisement is fitted.

When installed in a public area, the lid 9 remains locked to the receptacle 3 in the closed position shown in figures 1 to 3 so that the receptacle opening 8 is concealed and its edge 27 is sealed against the compressive seal in the recess 26 in the underside wall 25 of the lid 9. The receptacle 3 may be lined with a disposable sack (not shown) an open end of which is reversed over the edge 27 of the opening 8 of the receptacle 3 so that when the lid is closed the sack is trapped between the edge 27 and the seal thereby preventing it from being dragged fully into the receptacle 3 under the weight of its contents. This sealing arrangement prevents the escape of unpleasant odours from the sack when the lid is closed and conceals the top edge of the sack from view when the lid 9 is closed.

Public access to the receptacle is provided by the flap 39 which is pivoted to an open position (as shown in dotted line in figure 2) by lifting the finger plates 42 so as to expose the chute 41. Waste matter (e.g. dog excrement) for disposal is deposited on the chute 41 causing the flap 39 to pivot back to its closed position under the weight of the deposited matter, thereby depositing the waste matter into the lined receptacle 3.

The receptacle 3 is periodically emptied by an authorised person who carries a key to the lock 44. When the lid 9 is unlocked and lifted to the open position shown in figure 5, the receptacle 3 pivots about the bottom end of the rear wall 5 (as will be described below) so that clear access is provided to the receptacle opening 8. The lining sack may be removed for disposal and replaced with a fresh sack. Since the top end of the sack is covered by the lid 9 there is a sterile area of the sack by which it can be readily grasped. If necessary, the receptacle 3 can be released and removed from the support bracket 10 to permit cleaning of the component parts of the bin 1, as described above.

Once unlocked the bin 1 is opened by lifting the front wall 22 of the lid 9. This movement initially forces

the arcuate link 28 to pivot about pins 29 relative to the support bracket 10 so that the end of the arcuate link 28 connected to the top wall of the lid 9 moves upwardly with the lid. Upward movement of front end of the lid 9 causes its rear wall 23 to move clear of the support bracket 10 (as shown in figure 4) and since it is pivotally connected to the mounting bracket 37 at the rear of the receptacle 3 the latter is forced to pivot about the moulded overhang/channel connection 14/15 at the bottom of its rear wall 5 so as to further expose the receptacle opening 8. At a certain point of inclination of the lid 9, when the arcuate link 28 has reached its limit of upward travel, it begins to pivot relative to the arcuate link 28 about the rod 33. This causes the arcuate link 28 to move over-centre so that it pivots downwardly about the pins 29 connected to the support bracket 10 and assists in further upward movement of the lid 9 and therefore farther pivoting of the receptacle 3. By virtue of the over-centre action a substantial mechanical advantage is achieved in opening the lid 9. During this opening action the receptacle 3 and its contents effectively act as a counterweight so that the lid moves to the fully open configuration (see figure 5) without great effort from the person emptying the bin.

In the fully open configuration the lid 9 is clear of the receptacle opening 8 so as to facilitate removal of the disposal sack without interference from the bin structure. The bin 1 is stable in this configuration and the underside of the lid or the chute are fully exposed to permit cleaning.

Claims

1. A waste container comprising an upright receptacle pivotally mounted on a support and having a closure pivotally associated therewith, the closure being pivotal relative to an opening of the receptacle between open and closed positions, wherein pivotal movement of the closure to the open position causes pivotal movement of the receptacle relative to the support to a position inclined to the upright.
2. A waste container according to claim 1, wherein a linkage is provided between the closure and the receptacle to permit movement of the closure with mechanical advantage.
3. A waste container according to claim 2, wherein the linkage comprises a link member that is pivotally connected at one end to the support and pivotally connected at the other end to the closure.
4. A waste container according to claim 2 or 3, wherein a rear wall of the closure is pivotally connected to a rear wall of the receptacle.
5. A waste container according to claim 4, wherein in the closed position the linkage is unextended and the link member overlies the closure.
6. A waste container according to claim 5, wherein the link member is received in a recess in the closure in the closed position.
7. A waste container according to claim 5 or 6, wherein in the open position the linkage is extended with the link member and the rear wall of the closure spanning a clearance between an upper end of the receptacle and the upper end of the support, the clearance being present by virtue of the inclination of the receptacle to the upright.
8. A waste container according to any one of claims 4 to 7, wherein the link member is connected to a top wall of the closure at a position adjacent the rear wall of the closure.
9. A waste container according to any one of claims 1 to 8, wherein the receptacle acts as a counterweight to the closure during movement of the closure between the closed and open positions.
10. A waste container according to any preceding claim, wherein the closure is sealed around the opening of the receptacle in the closed position.
11. A waste container according to claim 10, wherein the closure is recessed to receive an edge of the receptacle around the opening.
12. A waste container according to claim 11, wherein a seal is provided in the recess.
13. A waste container according to any one of claims 10 to 12, wherein the receptacle is lined with a sack an upper end of which is clamped between the closure and the receptacle when the closure is in the closed position.
14. A waste container according to any preceding claim wherein the receptacle is removable from the support and the closure.
15. A waste container according to claim 14, wherein there is provided a quick-release connection between the receptacle and the closure.
16. A waste container according to claim 14 or 15, wherein the receptacle has a projecting member that engages with the support to prevent removal until disengaged with a release key.
17. A waste container according to any preceding claim, wherein the closure has a disposal aperture closeable with a pivotal flap.
18. A waste container according to claim 17, wherein

the flap may be pivoted to expose a chute on which waste material may be deposited for disposal into the receptacle.

19. A waste container according to any preceding claim, wherein the closure is lockable to the receptacle in the closed position. 5

20. A waste container substantially as hereinbefore described with reference to the accompanying drawings. 10

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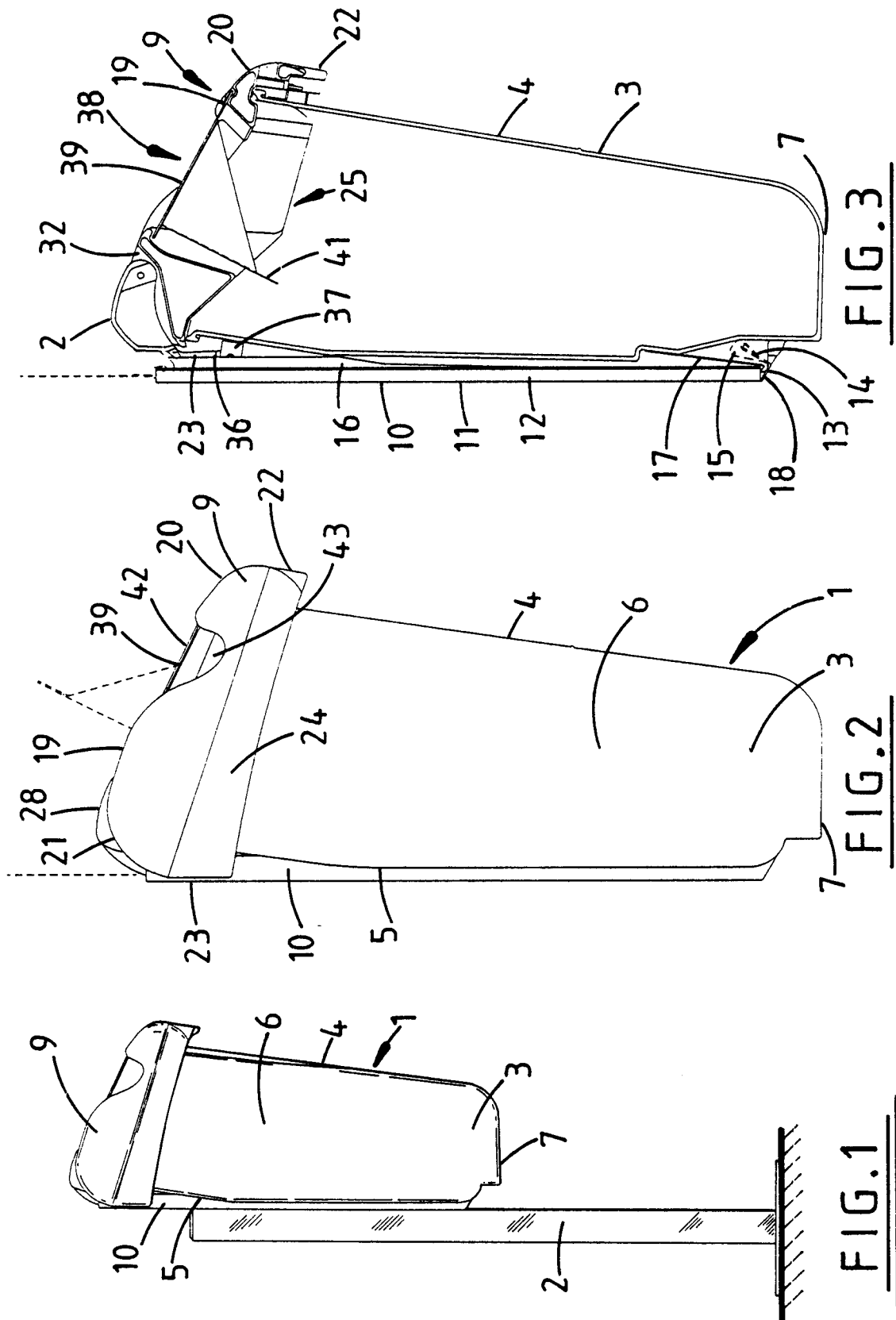
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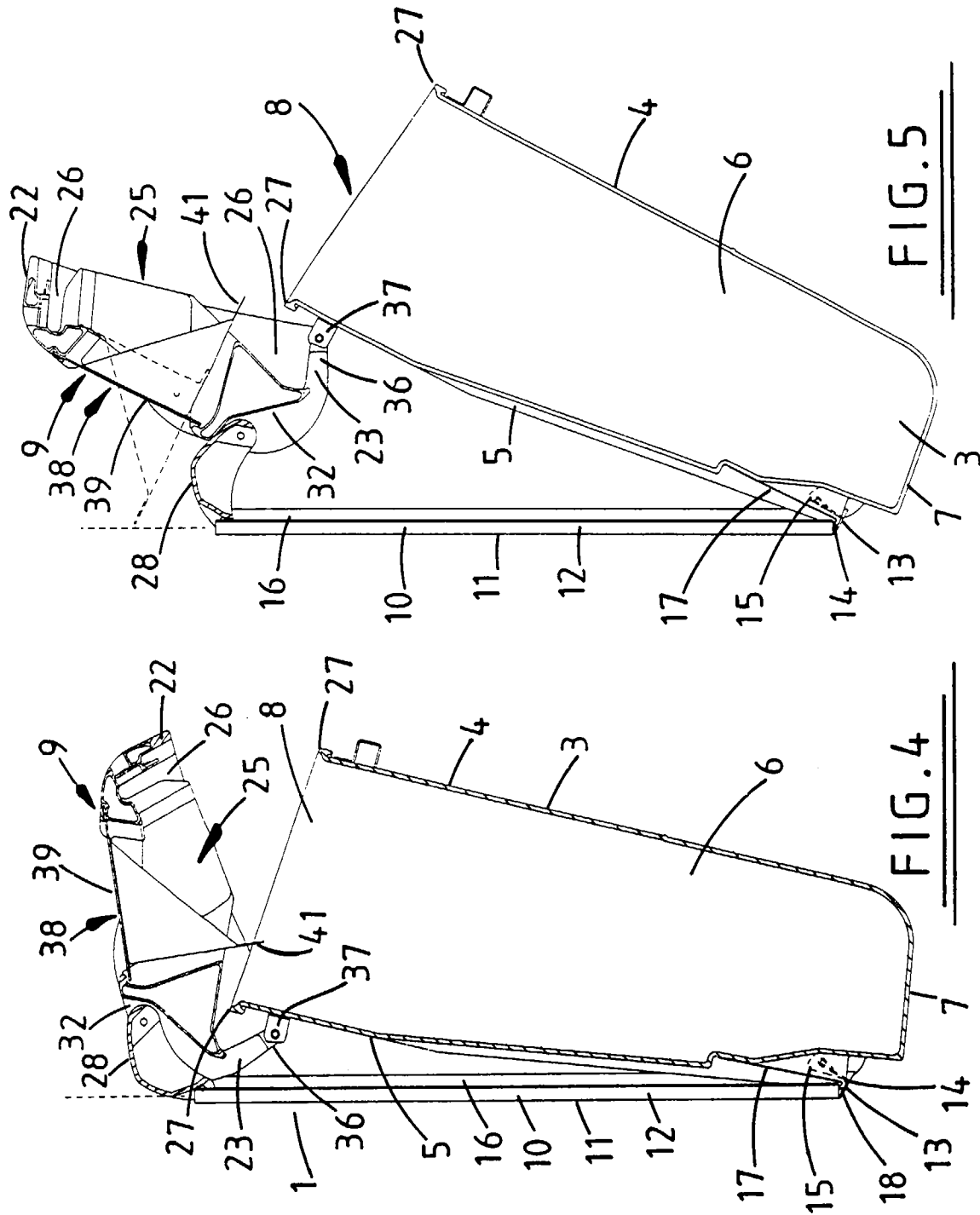
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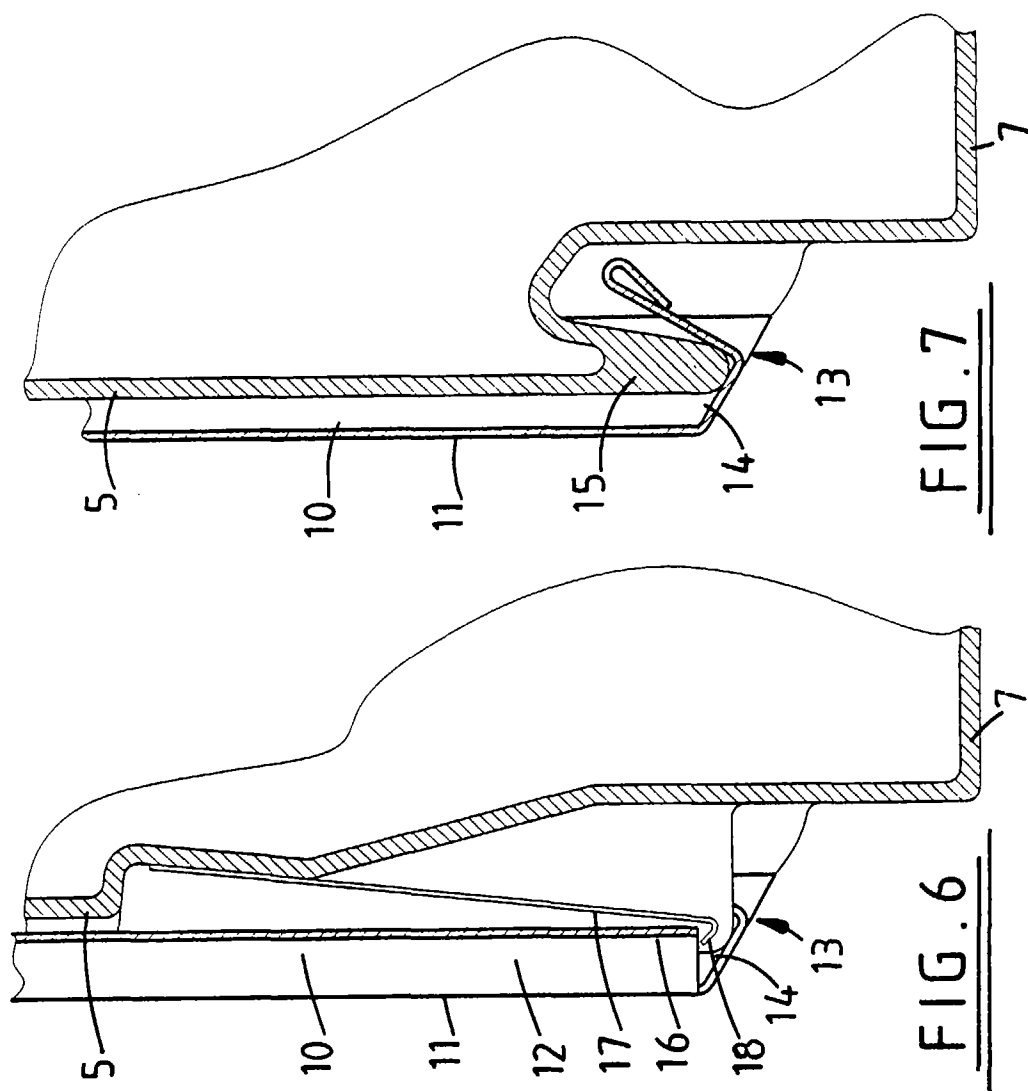
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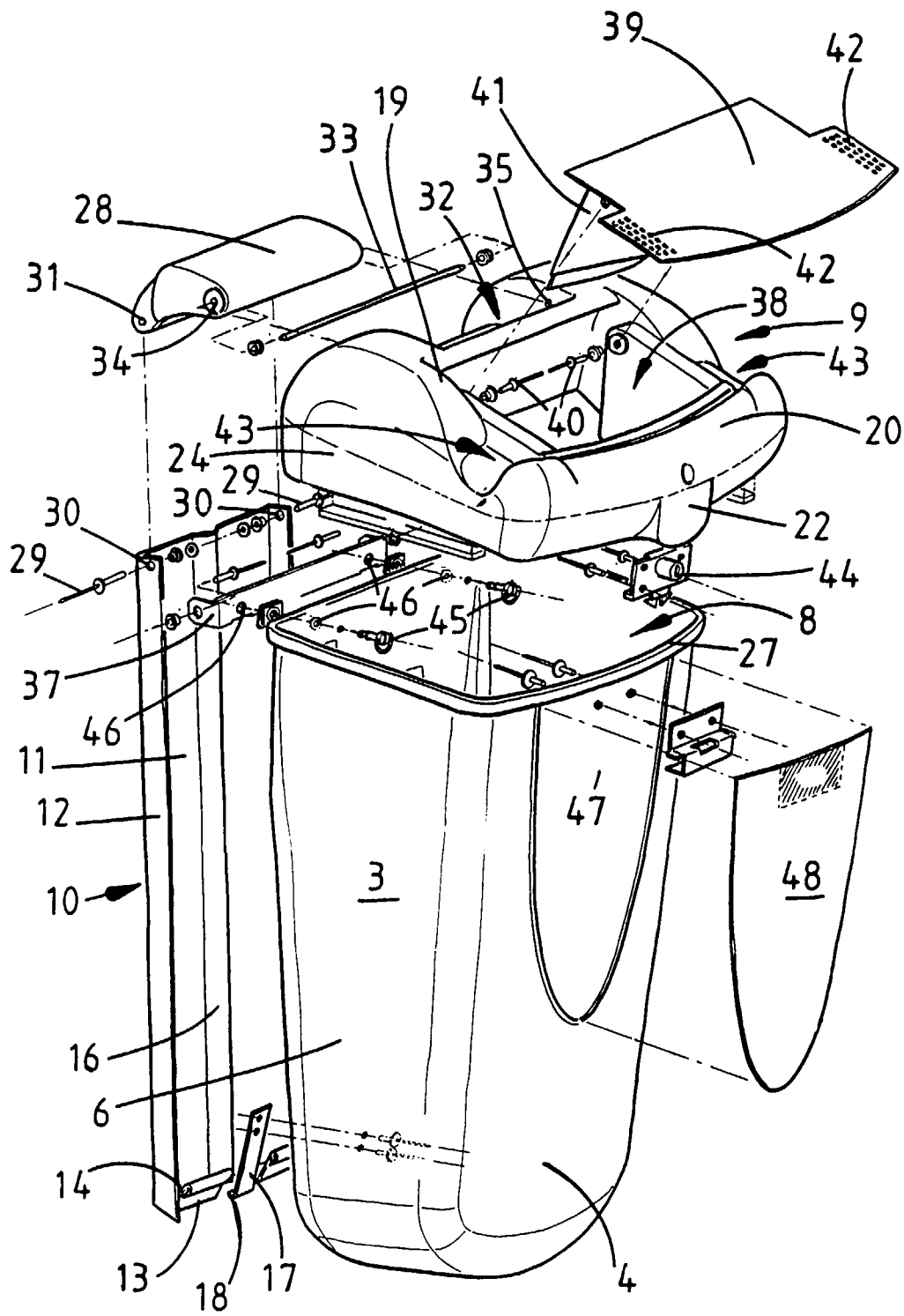


FIG. 8



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PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention EP 97 30 3421 shall be considered, for the purposes of subsequent proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 060 794 A (COMPAGNIE PLASTIC OMNIUM)	1,9-11, 14,19	B65F1/14
Y	* page 6, line 8 - line 32 *	2,12,13	
A	* page 7, line 28 - page 8, line 10 *	15	
	* page 9, line 14 - line 36 *		
	* figures 4-6 *		
Y	--- US 3 383 035 A (L. SMITHERS) * column 6, line 16 - line 35 * * column 5, line 56 - line 59 * * figures 3,4 *	2,12	
Y	--- DE 34 00 153 A (HAMMERLIT GMBH) * page 14, line 1 - page 17, line 2 * * figures 2,10 *	13	
A	--- US 1 594 535 A (I. LINDBECK) * the whole document *	1-4,8	

			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65F
INCOMPLETE SEARCH			
<p>The Search Division considers that the present European patent application does not comply with the provisions of the European Patent Convention to such an extent that it is not possible to carry out a meaningful search into the state of the art on the basis of some of the claims.</p> <p>Claims searched completely :</p> <p>1-19</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>20</p> <p>Reason for the limitation of the search:</p> <p>Rule 29(6)</p>			
Place of search		Date of completion of the search	Examiner
THE HAGUE		5 September 1997	Smolders, R
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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