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(54) Closure device for container with a hinged lid

(57) Closure for a lid (3), which is connected by means of hinges to a container (1) or a removable mounting rim (2) therefor so as to rotate between a first, closed position and a second, open position, which closure comprises co-operating means (5,6) present on the container or on the mounting rim and on the lid, which retain the lid in the closed position, in which the co-operating means are situated on the inside of the container or the mounting rim and of the lid and operate the closure when the lid is being pressed down in its entirety.

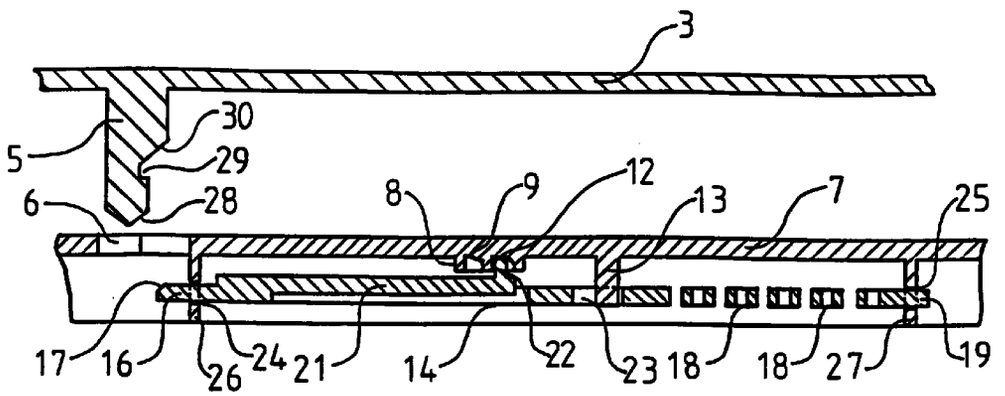

Fig. 4

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Description

The invention relates to a closure for a lid which is connected by means of hinges to a container or a removable mounting rim therefor so as to rotate between a first, closed position and a second, open position, which closure comprises co-operating means present on the container or on the mounting rim and on the lid, which retain the lid in the closed position.

A closure of this type is disclosed in DE-A-3,620,865, in which a closable waste bin is described, in the lid of which a manually displaceable latch is present, which in the closed position of the lid engages in a recess in the container rim and is held in this position by a spring acting on the latch. To open the waste bin, the user has to move the latch manually counter to the spring force.

A disadvantage of this construction is that dirt can accumulate therein, which is difficult to remove therefrom and with which the user can then come into contact when opening the lid. This is undesirable from a hygienic viewpoint.

The object of the invention is to provide a closure as described in the preamble which eliminates or alleviates this disadvantage.

This object is achieved according to the invention in that the co-operating means are situated on the inside of the container or the mounting rim and of the lid and operate the closure when the lid is being pressed down in its entirety.

Due to the fact that the closure is operated by moving the lid as a whole, no additional provisions, for example in the form of push buttons or latches, which can become soiled with dirt, are required on the outside of the lid or container in order to operate the closure. An additional advantage is the lack of parts which project from the lid or container. Projecting parts of this type can easily be damaged and the user's clothing can become snagged on them or he may become caught up in another manner. The accumulation of dirt in such external parts can also adversely affect the operation of the closure.

The co-operating means are situated, with regard to the container or the mounting rim, on the upper edge thereof. This is understood to mean the edge which runs along the open side of the container. The open side is the side which is sealed by the lid in the closed position. The edge can thus either be integral with the container or form part of a separate removable mounting rim which is placed on the periphery of the open side of a container.

A virtually closed position of the lid is understood to mean a position in which the lid is closed to such an extent that the co-operating means do actually operate the closure. In the closed position of the lid, the means co-operate in such a manner that the lid is latched.

Pressing down the lid is understood to mean the exertion of a force on the lid when the latter is in the closed or virtually closed position, the means which operate the closure then co-operating.

The invention also relates to a container or removable mounting rim therefor with a lid, which is connected by means of hinges to the container or the mounting rim so as to rotate between a first, closed position and a second, open position, provided with a closure as described above and in the text which follows. Preferably, at the location of the hinges, further means, for example in the form of springs, are present, which push the lid into the open position. In the unlatched state of the lid, which is to be understood as meaning the state in which the closure is not retaining the lid, the lid is moved into the open position and held there by these further means. This has the advantage that, on unlatching the lid, the user need not open the latter and hold it open by hand, and consequently he has both hands free in order to deposit material in the container or take material out of it. In the closed position, these means hold the closure tensioned, as a result of which inadvertent unlatching, for example under the influence of vibrations or shocks, is prevented. Moreover, these further means press the lid slightly upwards, so that the lid can still be pressed downwards even in the closed position, in order to operate the latching. The lid thus has two stable positions, a first position in which the lid is closed and latched and a second position in which the lid is open.

In a preferred embodiment of the invention, the closure comprises a latch which can be displaced by pressing down the lid and on which there is situated a boss, which, when the latch is being displaced, follows a boss track in which there are two rest positions for the boss, in the first of which the latch retains the lid in the closed position and in the second of which the latch releases the lid. Preferably, a return force acts on the latch, exerted for example by a spring, counter to the direction of displacement of the latch when the lid is being pressed. In order to be able to follow the contours of the boss track, the boss or the part of the latch on which the boss is situated is preferably movably connected, both in the plane of the latch and perpendicularly thereto, to the rest of the latch. The boss track forms a closed track, along which the boss is forced to move in a fixed direction of movement. The two rest positions are situated in the boss track. If the lid is not being pressed, the boss is situated in one of these two rest positions. The boss track is formed such that when the lid is repeatedly being pressed and released again, the boss is forced alternatively into the first and into the second rest position. In this process, the boss first moves along a part of the track as a result of the movement of the latch under the influence of the lid being pressed, whereupon the boss, when the lid is released, is driven back into one of the rest positions by the return action of the spring. The track can be formed, for example, by depressions forming a suitable path or by elevations enclosing a suitable path, which can be recessed in or mounted on the container rim, for example. The rest positions can then be formed, for example, by deeper depressions in the boss track, in which the boss is received, or by specially formed elevations which form a cavity in which the boss is received. The boss track can be integral with the wall of the con-

tainer, but a separate plate may also be arranged against the wall, in or on which the boss track is arranged.

The lid is preferably provided with means which displace the latch when the lid is being pressed down. Preferably, for this purpose, the lid is provided with a projection close to the edge, which projection moves the latch when the lid is being pressed down. Preferably, also, the latch retains the lid in the closed position by co-operation with the projection, which to this end, for example, is provided with a recess in which one end of the latch is received. The latch is situated on the inside of the container. Preferably, the container rim is a horizontal rim which is present along the upper side of the container and extends towards the inside of the container, and to the inside of which the latch is movably connected. In the closed position, the lid comes down onto or over this rim. A hole corresponding to the location of the projection on the lid is present in the rim, which projection can thus operate the latch present on the inside of the rim through said rim. The relative positions and dimensions of the projection and latch are furthermore chosen such that they can co-operate with one another in the closed and virtually closed positions of the lid.

Fitting the closure in a removable mounting rim for a container, to which the lid is connected by means of hinges, provides the advantage that the same latchable lid system can be used on various types of container. Moreover, the insides of the container and rim can be better cleaned when they are taken apart. The invention therefore also relates to a mounting rim for a container provided with a closure for a lid which is connected by means of hinges to the container so as to rotate between a first, closed position and a second, open position, which closure comprises co-operating means which are present on the container and on the lid which retain the lid in the closed position, in which the co-operating means are situated on the inside of the container and lid and operate the closure when the lid is being pressed down in its entirety.

A mounting rim of this type with lid can also be used on constructions which are known per se for suspending exchangeable bags therein, for example laundry bags or refuse sacks. These constructions generally consist of an upper edge, to which the bag can be fastened, and a frame which is entirely or partially open. The mounting rim can be placed on the upper edge or over and around it.

The abovementioned preferences for the design and location of the co-operating means which form part of the closure, and the advantages associated therewith, are equally applicable to the mounting rim.

The invention is to be explained with reference to the following figures, in which:

Fig. 1 is perspective view of a container with a mounting rim with an open lid;

Fig. 2 is a bottom view of the horizontal part of the front of the mounting rim;

Fig. 3 is a top view of an embodiment of the latch with integrated spring;

Fig. 4 is a cross-section along the line A-A in Fig. 1 with open lid;

Fig. 5 is a cross-section along the line A-A in Fig. 1 with closed lid.

In Fig. 1, 1 is a container on which a mounting rim 2 has been placed. A lid 3 is connected by means of hinges to the mounting rim 2. Springs 4 force the lid in the direction of its open position. A projection 5 is present on the lid, which is received in opening 6 in the horizontal part on the front of the mounting rim when the lid is being closed and then operates a latch. This latch is situated on the underside, that is the side facing the container, of the horizontal part of the mounting rim and is not visible in this figure.

In Fig. 2, 7 is the horizontal part of the mounting rim with opening 6 therein. At a distance from the opening, there is boss track 8, with a path therein consisting of a first rest position 9 connected by a first path 10 and a second path 11 to a second rest position 12. Rest positions 9 and 12 are recessed with respect to the paths 10 and 11. Beyond boss track 8, seen from the direction of opening 6, is a pin 13 projecting upwards from the plane of the drawing.

In Fig. 3, a latch 14 is shown, consisting of a body 15 which has a lip 16 with a bevelled portion 17 at one end and is connected at the opposite end to a spring 18. At that end of spring 18 which is not connected to the latch, a lip 19 is present. A U-shaped slot 20 which surrounds a tongue 21 is present in the body of the latch. At the end of tongue 21, which due to the selected construction has a substantial degree of mobility in the plane of the latch and perpendicular thereto, there is situated a boss 22. A slot 23 is situated in the body 15. Together with pin 13 on the container rim, this slot limits the movement of the latch.

In Fig. 4, the lips 16 and 19 of the latch 14 with integrated spring 18 are accommodated in openings 24 and 25, respectively, in ribs 26 and 27, respectively, which emanate from the horizontal part 7 of the mounting rim. Pin 13 is situated in slot 23.

Latch 14 is situated in the position associated with an open lid, in which case boss 22 is situated in the second rest position 12 in boss track 8. When lid 3 is being pressed down, tip 28 and recess 29 of projection 5 can pass freely by the latch. When pressed down further, inclined flank 30 comes into contact with lip 16 of latch 14 and in particular with the bevelled portion 17 thereof. Latch 14 will thus be displaced to the right, as a result of which boss 22 is moved out of rest position 12 and at the same time spring 18 is compressed. When the lid is pressed down fully, boss 22 is situated at the start of path 11, so that when the latch moves back, the boss will reach the first rest position 9 along path 11. If the lid is released, springs 4 will then seek to force the lid into the open position. Lid and projection thus move upwards. Spring 18 presses the latch against the projection and,

as the lid moves upwards, will move the bevelled portion 17 of the latch to the left along inclined flank 30, and the latch will engage in recess 29 of the projection. As a result, the lid is latched in the closed position. At the same time, boss 22 is pressed into the first rest position 9, as indicated above. Spring 18 ensures that the lid is retained in a position such that a space is present between lid and container rim, so that the lid can still be pressed down in the latched position.

The situation which has then been reached is depicted in Fig. 5. If lid 3 is now pressed down again, inclined flank 30 of projection 5 co-operates with the bevelled portion 17 of the latch 14 and the latch is moved to the right again. Boss 22 here follows the path 10 of the boss track and spring 18 is compressed again. If the lid is pressed down fully, the boss 22 is situated at the end of path 10 and, when the latch is moved back, will reach the second rest position 12. If the lid is then released and is forced into the open position by the springs 4, the latch is pressed back by spring 18 and boss 22 reaches the second rest position 12 again. In this second rest position, the latch has been pushed so far to the right that tip 28 of projection 5 can pass it unhindered, and the lid is forced into the open position by the action of the springs 4. As a result, the original situation at the start of the explanation on Fig. 4 is reached again.

Claims

1. Closure for a lid which is connected by means of hinges to a container or a removable mounting rim therefor so as to rotate between a first, closed position and a second, open position, which closure comprises co-operating means present on the container or on the mounting rim and on the lid, which retain the lid in the closed position, characterized in that the co-operating means are situated on the inside of the container or the mounting rim and of the lid and operate the closure when the lid is being pressed down in its entirety.

2. Closure according to Claim 1, which comprises a latch which can be displaced by pressing down the lid and on which there is situated a boss, which, when the latch is being displaced, follows a boss track in which there are two rest positions for the boss, in the first of which the latch retains the lid in the closed position and in the second of which the latch releases the lid.

3. Closure according to Claim 2, in which a return spring acts on the latch counter to the direction of displacement of the latch when the lid is being pressed.

4. Container or removable mounting rim therefor with a lid, which is connected by means of hinges to the container or the mounting rim so as to rotate between a first, closed position and a second, open position, provided with a closure according to one of Claims 1 to 3.

5. Container or mounting rim according to Claim 4, the lid of which is provided close to its upper edge with a projection which moves the latch when the lid is being pressed down.

6. Container or mounting rim according to Claim 5, in which the latch retains the lid in the closed position by co-operation with the projection.

7. Container or mounting rim according to one of Claims 4 to 6, in which, at the location of the hinges, means are present which force the lid into the open position.

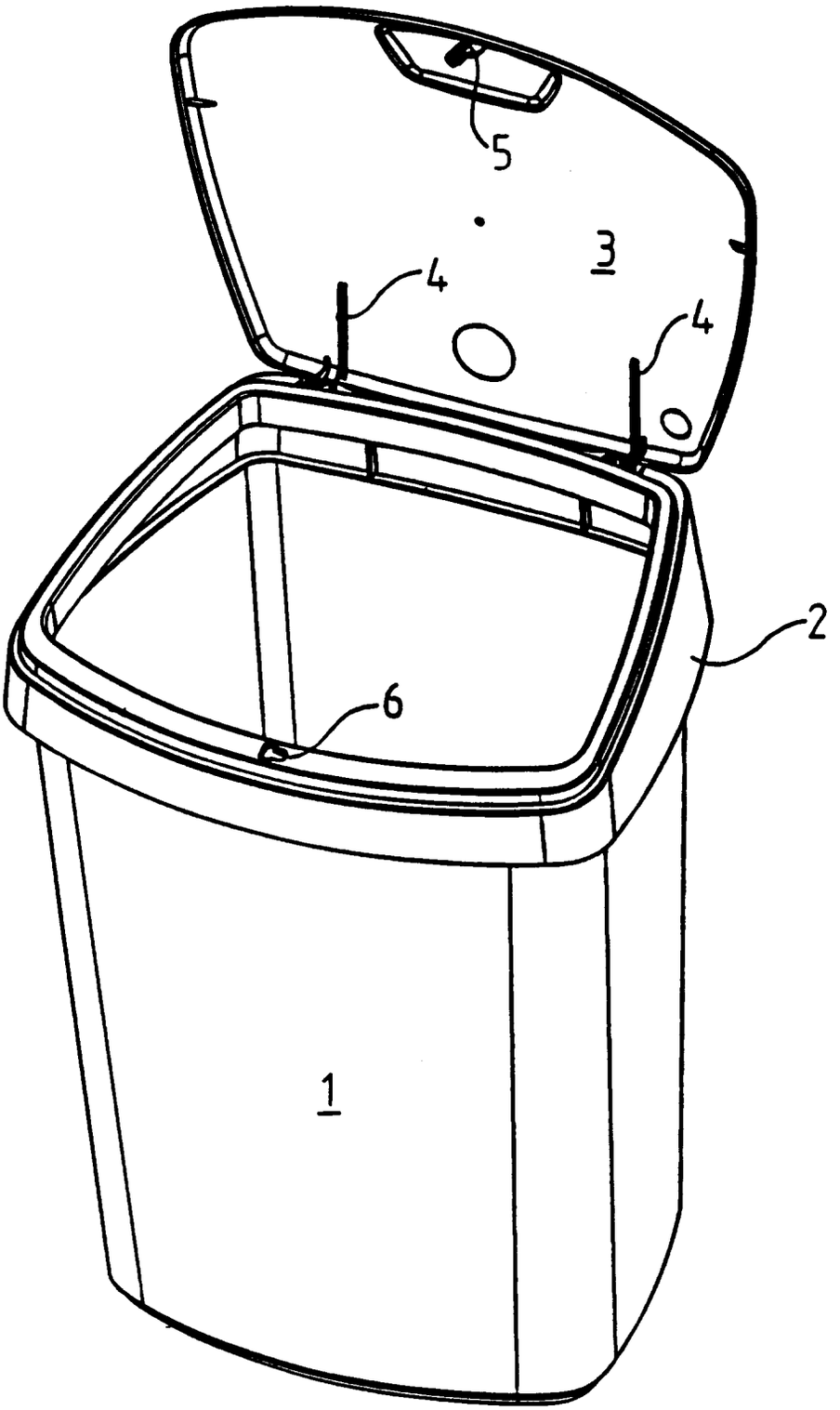

Fig. 1

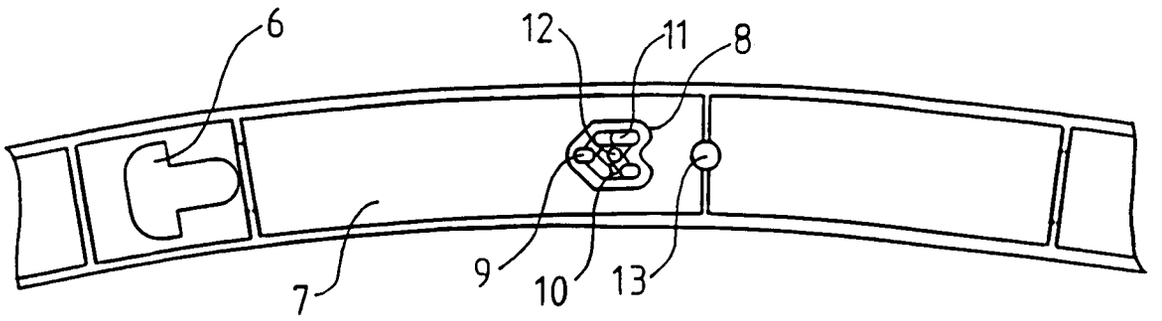

Fig. 2

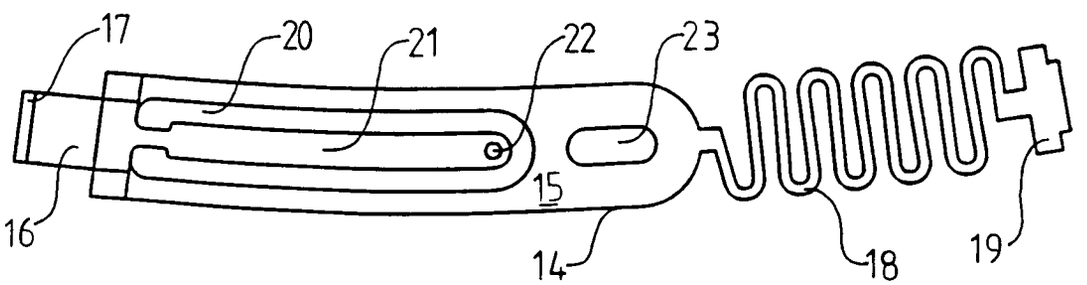

Fig. 3

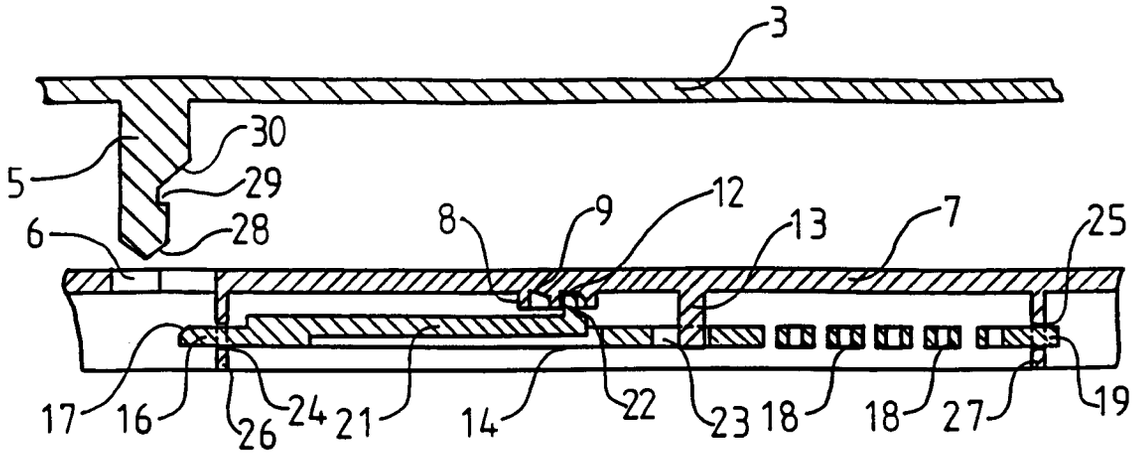
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Fig. 4

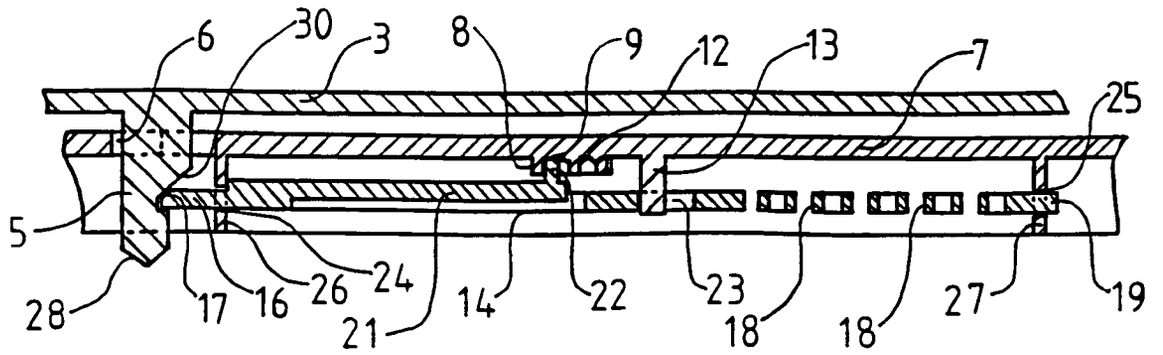
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Fig. 5