

DESCRIPTION

CONTAINER CLOSURE

The invention relates to a container closure according to the features of the preamble of each of the two independent patent claims.

DE 10 2014 207 652 A1 discloses a container closure (1), having a closure bottom part (5) and a cap (2) and also a mouthpiece (3) and means for piercing a closure film, with a tamper-evident band (6) being provided which ensures that the closure film can only be pierced by the means when the tamper-evident band (6) has been removed, the tamper-evident band (6) being arranged between the closure bottom part (5) and the cap (2). The reference numbers refer to the abovementioned document.

Furthermore, DE 10 2017 100 184 A1 discloses a container closure (1), having a closure bottom part (5) and a cap (2) and also a mouthpiece (3) and means for piercing a closure film, with a tamper-evident band (6) being provided which ensures that the closure film can only be pierced by the means when the tamper-evident band (6) has been removed, the tamper-evident band (6) being arranged between the closure bottom part (5) and the cap (2), the tamper-evident band (6) being designed as a closed ring, which is connected to a lower edge of the cap (2) via at least one separable web (8), and the cap (2) being mounted on the closure bottom part (5) so as to be able to be turned and pressed in each case in sections. The reference numbers refer to the abovementioned document.

The object of the invention is to improve the handling and environmental compatibility of a known container closure having a tamper-evident band (sealing ring).

This object is achieved by the fact that the tamper-evident band has a plurality of predetermined breaking points oriented in the axial direction of the container closure and is activated by a spreading procedure. Before the predetermined breaking points are separated, it is easy to see and check that the tamper-evident band has not yet been

activated, i.e. that the container closure is still intact. When activated, the predetermined breaking points, which are distributed around the circumference of the container closure, are separated by simple pressing, so that the container closure is easy to handle. After pressing, the tamper-evident band bears with an interference fit on the container closure and remains on it, so that all parts can be disposed of together, in particular recycled, without individual parts of the container closure being lost and polluting the environment.

The spreading procedure can also be carried out in different ways. On the one hand, it is conceivable that the cap is unscrewed from its original state and the tamper-evident band is spread along with the rotation. After this has been done, it is possible for the cap to be pressed down in the direction of the container on which the container closure is attached, in particular screwed on, in order to activate the means for piercing the closure film. This makes it possible for an additive which is arranged in the closure bottom part to be released and to move in the direction of the container. On the other hand, it is conceivable that the cap is first unscrewed from its original state without the tamper-evident band being spread. The spreading of the tamper-evident band takes place only when the cap is pressed down in the direction of the container in this state.

In a simpler version of the two variants mentioned above for activating the cap and the resulting spreading of the tamper-evident band, it is conceivable that the cover of the closure (more precisely of the mouthpiece) can be activated, i.e. opened, independently of this. If the cap initially remains in its original state (delivery state), it can be considered to open the mouthpiece cover without turning the cap. In this way, the means for piercing the closure film become accessible and can be pressed down in the direction of the container in order to pierce the closure film. Although this means that the additive located in the closure bottom part can enter the container, the surface area for activating the piercing means is relatively small, so that higher forces have to be applied. In order to avoid these higher forces, in another and therefore improved variant, the tamper-evident band is activated when the mouthpiece cover is unactivated, i.e. by twisting or a linear movement of the cap, it spreads and thus breaks open the at least one predetermined breaking point. By breaking open the predetermined breaking point, the cap can be

moved from its first position (delivery state) to a further position, which simultaneously has the effect that the means for piercing the closure film are also moved along with this movement. Since this movement involves pressing the cap down in the direction of the container, the free surface of the mouthpiece cover makes available a larger surface area for activation of this movement, and therefore less force is required to activate the means for piercing the closure film. After the means for piercing the closure film have been activated, the additive located in the closure bottom part enters the container. At the same time, the piercing means remain in this pressed-down position within the closure bottom part, so that the contents of the container mixed with the additive can be removed, preferably drunk, via the mouthpiece through the closure bottom part along the means for piercing the closure film. The cap also remains on the closure bottom part in the position differing from the delivery state; in this position, the broken predetermined breaking points are very clearly visible and are a sign that the container closure has already been activated. By activation of the mouthpiece cover, it is possible to close the mouthpiece again (as was already the case in the original state) or to open it at any time and then close it again. The mouthpiece cover also remains advantageously on the cap, so that this container closure unit, consisting of the closure bottom part, cap and means for piercing the closure film, can remain together and be recycled together. In this case, the requirement of what are called "tethered caps" is fulfilled. If this is not necessary, these components can also be arranged so that they are detachable from one another and can thus be separated from one another. In this case, they can be recycled separately from one another.

In a development of the invention, it is provided that the closure bottom part has at least one web arranged approximately in its central region and facing outwards, wherein the at least one web interacts with a predetermined breaking point of the tamper-evident band. The at least one web causes the circumferential tamper-evident band to widen when the latter is rotated relative to the closure bottom part by hand. The at least one web lies in a recess of the tamper-evident band in the region of the predetermined breaking point, so that although the material of the tamper-evident band is continuous there, it is somewhat thinner than the surrounding regions. As a result of the rotation, the web is moved out of

this recess and causes the tamper-evident band to spread (widen), with the result that the thinner region of the predetermined breaking point breaks upon further rotation, which can be seen visually from outside. In addition, the cap is designed in such a way that it cannot be pressed down in the direction of the container until the at least one predetermined breaking point has been broken open.

In a further development of the invention, a plurality of webs distributed over the circumference of the closure bottom part are provided. This increases the visibility of whether the tamper-evident band has been activated or not, i.e. whether the predetermined breaking points have been broken open or not. This also makes the tamper-evident band safe, since a plurality of predetermined breaking points have to be broken open before the cap can be pressed down relative to the closure bottom part. In addition, in this case, the forces when turning the cap relative to the closure bottom part are reduced, since the material in the region of the predetermined breaking points can be made thinner than if there were only a single predetermined breaking point.

In a further development of the invention, it is provided that the web is oriented parallel to the vertical axis of the container closure. Accordingly, the recess in the tamper-evident band for forming the predetermined breaking point is also oriented parallel to the vertical axis of the container closure. As a result, the cap rests securely on its closure bottom part in the delivery state, and clearly perceptible forces are required to twist the cap in order to spread the tamper-evident band. For the person activating the container closure, this not only creates a visually perceptible effect, but also a haptically perceptible effect which shows that the tamper-evident band has been spread and the container closure thus activated.

In an alternative embodiment, it is furthermore provided according to the invention that the web is oriented in deviation from the vertical axis of the container closure. By arranging the web at an angle on the closure bottom part and thus correspondingly orienting the recess in the tamper-evident band at an angle in order to form the predetermined breaking point, the forces required to twist the cap relative to the closure

bottom part are reduced, while at the same time the visibility of the broken predetermined breaking point(s) is maintained after this twisting. The haptically perceptible effect, that the tamper-evident band has been spread and thus the container closure activated, is thus retained, albeit to a somewhat lesser extent.

As an alternative to designing the closure bottom part with webs that cause the tamper-evident band to spread when the cap is rotated, it is provided according to the invention that the closure bottom part has, above its fastening region, a central region tapering conically in the direction of the mouthpiece. In this case, in the delivery state of the container closure, the tamper-evident band, as in the alternative already described above, is cylindrical in shape and has at least one predetermined breaking point about its circumference, preferably a plurality of predetermined breaking points distributed about its circumference. By pressing the cap down in the direction of the container, this initially still cylindrical region of the tamper-evident band slides over the downwardly conically widening central region of the closure bottom part, causing the tamper-evident band to spread and the predetermined breaking points to break open. When the cap is thus pressed down with the mouthpiece closed (mouthpiece cover not activated), the means for piercing the closure film are carried along. However, it may be conceivable to first open the mouthpiece cover, activate the means for piercing the closure film, then close the mouthpiece cover again and only then press the cap downwards over the conically widening region in order to spread the tamper-evident band and break open the predetermined breaking points. This therefore provides at least one further structural embodiment of how the tamper-evident band can be spread by pressing down.

In a further development of the invention, it is provided that the closure bottom part has, above its fastening region, at least one at least partially, preferably completely, circumferential support surface, which interacts with a contact surface of the cap, preferably with the circumferential lower edge of the tamper-evident band. This interaction has the advantage that, in the delivery state, high loads can act on the cap from above without the tamper-evident band spreading. This ensures a high "top load" in the event that several containers with container closures according to the invention mounted on

them are placed on top of one another, as is usual, for example, when storing or selling such containers. Alternatively, or preferably in addition to this, the interaction has the advantage that the support surface on the closure bottom part brings about a contact and thus a limitation of the movement of the cap relative to the closure bottom part after the tamper-evident band has been spread and the cap has been pressed down relative to the closure bottom part. If there are support surfaces on the closure bottom part and corresponding contact surfaces on the cap, it goes without saying that when the tamper-evident band is spread, the contact of those surfaces that cause the "top load" is eliminated, since otherwise it would not be possible to press the cap down relative to the closure bottom part. At the same time, the design ensures that, after the pressing down, the contact surface of the cap, in particular the lower circumferential edge of the tamper-evident band, comes to bear on the corresponding contact surface on the closure bottom part, and thus further pressing down is no longer possible.

In a further development of the invention, it is provided that the closure bottom part has at least one latching connection, wherein the cap also has at least one latching connection interacting with the latching connection of the closure bottom part. These latching connections, which correspond to one another, ensure that the cap is held in a respective desired or required position in relation to the closure bottom part. Since these latching connections are releasable, it is possible that, after release of the at least one latching connection, the cap initially held in one position can be brought to at least one further position or exactly one other position. This ensures, for example, that the cap in the delivery state is held in an upper position on the closure bottom part and that, after the cap has been activated (in particular pressed down), it is held again in a position below the upper position. This has the advantage that the cap is held in a defined manner in its respective position in relation to the closure bottom part and can no longer be moved up and down. This also prevents the cap, in the sense of a "tethered cap", from being able to detach from the closure bottom part. The mutually corresponding latching connections can be designed, for example, as a circumferential groove (in the closure bottom part) and a circumferential web (facing inwards in the inner region of the cap) or vice versa or such like.

In a further development of the invention, it is provided that the mouthpiece cover is arranged on the cap via a film hinge. This means that the mouthpiece cover can be easily manufactured and arranged on the cap in a captive manner using an injection moulding process. At the same time, the mouthpiece cover can be easily opened and closed again.

In a further development of the invention, it is provided that the mouthpiece cover is arranged on the cap via at least one predetermined breaking point. As with the at least one predetermined breaking point on the tamper-evident band, the predetermined breaking point between mouthpiece cover and cap can be used to visually determine whether the container closure is in the delivery state (unopened) or has already been used (broken predetermined breaking point between the cap and the mouthpiece cover). It is also conceivable to provide only one predetermined breaking point or a plurality of predetermined breaking points instead of the film hinge. In this case, however, the mouthpiece cover cannot be reattached, so that it is not possible to reclose the container.

In a further development of the invention, it is provided that the mouthpiece cover is connected to the cap via at least one latching connection that can be released by an external force. The latching connection between the mouthpiece cover and the cap is designed in such a way that it cannot be released by hand using normal force. It is only when the latching connection is acted upon by hand from outside, with the aid of an additional actuating element, that it can be released and then the mouthpiece cover can be released from the cap or opened up.

Irrespective of the mode of operation of the container closure, the closure bottom part can be formed in one piece or can be composed of at least two parts.

In the following, an embodiment according to the invention is described with reference to Figures 1 to 7.

Figure 1 shows a container closure 10 of the invention, which has a closure bottom part 11, a cap 12 arranged movably above the latter, and means 13 for piercing a closure film (not shown). An additive is filled into the closure bottom part 11, inside and partially around the means 13, the lower region of the closure bottom part being closed by a closure film. The lower region of the closure bottom part 11 is provided with a thread, for example, and can be arranged or is arranged on a container (not shown) into which a medium is or can be filled, being screwed on in the case of the thread. For the defined fixing of the cap 12 to the closure bottom part 11, the closure bottom part 11 has at least one latching connection, the cap 12 also having at least one latching connection that interacts with the latching connection of the closure bottom part 11. These two interacting latching connections are released or separated from each other when the cap 12 is pressed down in the direction of the container relative to the closure bottom part 11 (see Figure 5 later on).

Figure 2 shows the three elements of the container closure 10 in detail. As can be seen from the illustration on the left, the closure bottom part 11 has a fastening region 14 with which the closure bottom part 11 is arranged on the container, preferably being screwed onto the latter. In the other end region facing away from this, a mouthpiece 15 is provided, which does not have an opening that can be seen when looking at Figure 2 (left-hand illustration). Between the two end regions of the bottom closure part 11, the latter has a central region 16. In the course of the central region 16 (when looking from the top downwards) there is at least one circumferential shoulder, preferably two circumferential shoulders 17.1 and 17.2. Also in the central region 16, there is a web 18 oriented approximately parallel to the vertical axis of the closure bottom part 11. In this embodiment, there are several webs 18 distributed about the circumference.

The central illustration in Figure 2 shows the means 13 for piercing the closure film. The upper end of this means 13 can be pressed. By pressing it down (from the top downwards when looking at Figure 2), the lower end of the means 13 breaks through the closure film (not shown) and thus opens it, so that the additive present within the closure bottom part 11 can reach the container underneath.

The illustration on the right in Figure 2 shows the cap 12 which, as can be seen from Figure 1, is arranged above the upper part of the closure bottom part 11 in the delivery state. The cap 12 also has a central region 19, with a movable mouthpiece cover 20 arranged above it and a tamper-evident band 21 arranged below. These elements form the cap 12 in one piece but may also be movable (mouthpiece cover 20). There is at least one predetermined breaking point 22 in the tamper-evident band 21. In practice, there will be a plurality of predetermined breaking points 22 distributed about the circumference of the tamper-evident band 21. As can also be seen in Figure 1, at least one predetermined breaking point 22 is not yet broken in the delivery state. The mouthpiece cover 20 is connected to the central region 1, preferably via a film hinge 23. In order to record that the mouthpiece cover 20 has not yet been actuated in the delivery state, a predetermined breaking point 24 is present. This predetermined breaking point 24 is broken when the mouthpiece cover 20 is actuated via the film hinge 23, i.e. has been opened to make the mouthpiece 15 of the closure bottom part 11.

Fig. 3 shows how the cap 12 has to be moved, starting from the delivery state, so that the tamper-evident band 20 is caused by this movement to spread. By a rotational movement D of the cap 12 relative to the closure bottom part 11, the tamper-evident band 21 slides over the webs 18 of the closure bottom part, so that the tamper-evident band 21 is thereby spread. The rotational movement D can be limited by corresponding stops between the closure bottom part 11 and the cap 12, but this does not have to be the case. After this rotational movement D has been carried out, it is possible that the cap 12, as seen in Figure 3, can be pressed down in the direction of the container (not shown) by a force being exerted from the top downwards.

Figure 4 shows the function of tamper-evident band 21 in detail. Looking at the left-hand illustration in Figure 4 and the enlarged illustration in the middle, it can be seen that, all the way around the tamper-evident band 21, there are recesses in which, in the delivery state, the webs 18 of the closure bottom part 11 come to rest when the cap 12 has been arranged on the closure bottom part 11. In this state, the predetermined breaking points

22 are not yet opened. When the rotational movement D takes place around the closure bottom part 11, i.e. the rotational movement due to the external force acting on the cap 12, the webs 18 are transferred from the thinner region of the tamper-evident band 21 to the thicker region of the tamper-evident band 21, which results in a spreading S of the tamper-evident band 21. Due to the thinner material thickness of the tamper-evident band 21, this spreading leads to the predetermined breaking points 22 being broken open. This means that the tamper-evident band 21 breaks open and is spread, since the webs 18 are preferably conical. The upper connection of the tamper-evident band 21 to the central region 19 of the cap 12 acts as a hinge, as can be clearly seen in the right-hand illustration in Figure 4.

After the cap 12 has been twisted relative to the closure bottom part 11 and the tamper-evident band 21 has been spread, it is possible to press the cap 12 down by a movement K, which is shown in Figure 5.

In this regard, the following should also be noted concerning the arrangement and sequence of movement of the cap 12 in the direction of the container. In the delivery state, as shown in Figure 1, the circumferential lower edge of the tamper-evident band 21 lies on the circumferential shoulder 17.2 of the closure bottom part 11. This means that the cap 12 is supported on the closure bottom part 11 in the delivery state, preventing the cap 12 from being able to move downwards in this state. This achieves the required "top load". This contact of the lower edge of the tamper-evident band 21 on the circumferential shoulder 17.2 is then cancelled when the cap 12 is rotated and the tamper-evident band 21 has spread (see Figure 3). Only by removing the contact is it possible for the cap 12 to be pressed downwards. In order to stop the downward movement of the cap 12 in a defined manner, the further circumferential shoulder 17.1 is present in the transition between the fastening region 14 and the central region 16 of the closure bottom part 11. If the cap 12 is pressed down in the direction H as shown in Figure 5, the circumferential lower edge of the tamper-evident band 21 ultimately comes to rest against the circumferential shoulder 17.1, so that further pressing down is no longer possible.

Alternatively, the cap has webs that rest on the shoulder 17.2 after the spreading and pushing down, which also stops the movement.

This completion of the movement of the cap 12 causes the activation of the container closure 10, since the pressing down also has the effect that the means 13 for piercing the closure film are moved axially downwards, which results in the closure film being opened. As a result, the additive in the closure bottom part 11 enters the container (not shown) located underneath.

After this activation of the container closure 10 has taken place, the additive can mix with the medium in the container and be removed. This removal is enabled by the configuration of the container closure 10 as shown in Figure 6. The tamper-evident band 21 remains in the position shown, and the mouthpiece cover 20 arranged on the central region 19 of the cap 12 can be actuated, i.e. opened. The predetermined breaking point 24 is broken by application of a force from outside, for example by hand, and the mouthpiece cover 20 can be pivoted by means of the film loser 23, whereby the mouthpiece 15 of the closure bottom part 11 becomes accessible. Since the mouthpiece 15 is open in its upper end region after the means 13 have been pressed down, the medium can be removed from the container, for example drunk.

Figure 7 shows the case where the medium in the container has not yet been completely emptied, in which case the mouthpiece cover 20 is folded back via the film hinge 23 and the opening in the mouthpiece 15 is thus closed. The other parts of the cap 12 and the means 13 no longer move. To ensure this, the closure bottom part 11 has at least one latching connection, and the cap 12 also has at least one latching connection that interacts with the latching connection of the closure bottom part 11. By pressing down in direction H, these two latching connections are connected to each other, so that the cap 12 is fixed to the closure bottom part 11 in the pressed-down state.

However, with the design of the container closure 10 shown in Figures 1 to 7 and with its corresponding mode of operation, the tamper-evident band 21 does not necessarily have to be provided in such a way as to ensure that the closure film can only be pierced by the

means 13 when the tamper-evident band 21 has been activated. This is because it is also possible in principle to open the mouthpiece cover 20 so that the upper end of the means 13 is free and then, if so desired, to turn the cap 12 around the closure bottom part 11 so that the tamper-evident band 21 is spread. During this spreading procedure, the means 13 are not yet activated; this only occurs together with the pressing-down of the cap 12 towards the container or independently of it. This is possible because, when the mouthpiece cover 20 is open, the means 13 are not automatically taken along by the cap 12 when the latter is pressed down.

By pressing on the free-standing and thus protruding upper region of the means 13, for example using a finger, the film can be pierced, after the mouthpiece cover 20 has been folded open, without twisting the cap 12 and activating the tamper-evident band 21. In the illustrations in Figure 8, in accordance with the embodiments shown in Figures 1 to 7, a sequence of movements for activating an alternative container closure is shown. In addition to similar elements and their similar movement, in the configuration of the container closure in Figure 8 the closure bottom part 11 has, above its fastening region 14, a central region 16 tapering conically in the direction of the mouthpiece 15. In this embodiment, the tamper-evident band 21 is spread by the cap 12 being pressed downwards, as viewed in Figure 8, i.e. in the direction of the container on which the container closure is arranged. As a result of the conical widening of the central region 16 in the downward direction, the predetermined breaking points 22 of the tamper-evident band 21 are broken. Before the cap 12 can be pressed down, it is necessary, according to the two lower left illustrations in Figure 8, for the cap 12 to be turned from a first position (delivery state) to a further position, for example by approximately or exactly 90 degrees, before the cap 12 can be pressed down. This serves to secure the container closure against accidental pressing down (and thus activation of the means 13) and is an outwardly visible sign of an unactivated (and therefore new and unused) container closure. This turning procedure preferably takes place before the pressing down, although the turning procedure can alternatively be omitted, so that the cap 12 can be pressed down directly to spread the tamper-evident band 21 and activate the means 13 without a prior turning movement.

Figures 9 to 11 show that the mouthpiece cover 20 is connected to the cap 12, in particular to the central region 19 of the cap 12, via at least one latching connection that can be released by an external force.

This embodiment is an alternative to the arrangement of the mouthpiece cover 20 on the cap 12; here, instead of the predetermined breaking point 24, a latching connection is provided which can be released only by application of a force from outside, so that this release of the latching connection enables opening of the mouthpiece cover 20, i.e. a pivoting movement around the film hinge 23 or another manner of opening.

In the initial state, in particular the delivery state, the mouthpiece cover 20 is arranged in a first position, which is shown in Figure 9, on the upper region of the cap 12. On the one hand, the mouthpiece cover 20 is secured via the film hinge 23. However, the activation of the mouthpiece cover 20 by pivoting around the film hinge 23 is possible only when the latching connection, formed by a latching hook 25 on the mouthpiece cover 20 and a further corresponding latching hook 26 on the cap 12, is released by application of a force from outside. So that the external force can undo the latching connection, a projection 27, for example designed as a bead, is arranged on the closure bottom part 11 as an additional activation element and a corresponding bevel 28 is arranged on the cap 12. The projection 27 and the bevel 28 that can be brought into operative connection therewith are arranged either all the way around or partially around the closure bottom part 11 and the cap 12, respectively. They can also be present several times around the circumference, interrupted by regions that do not correspond to one another and that can be brought into operative connection.

Figure 9 shows that the two latching hooks 25, 26 are operatively connected to each other, so that it is not possible to activate the mouthpiece cover 20, in particular to pivot it open around the film hinge 21 so that the mouthpiece 15 would be made accessible.

This state is shown again in detail in Figure 10. It can be seen that the cap 12 has, below its latching hook 26, a thicker wall region which tapers along a bevel 28 to a lower material

thickness of the cap 12 at the level of the projection 27. The bevel 28 is shown in steps in Figure 10. Alternatively, it can also be curved.

When an external force is applied by pressing on the cap 12, more precisely on the surface of the mouthpiece cover 20, this causes the cap 12 to move downwards as viewed in Figures 9 and 10. By this pressing down in the direction of the container (not shown), the bevel 28 comes into contact with the projection 27, i.e. the region of the cap 12 with the initially thinner wall thickness slides along the projection 27 of the closure bottom part 11 and reaches the region of the cap 12 with the then thicker wall thickness, so that the region of the cap 12 in the region of the latching connection 25, 26 widens. This widening has the effect that the upper part of the cap 12 in the region with the latching hook 26 moves (lifts) away from the latching hook 25 of the mouthpiece cover 20, as is shown in Figure 11. In this state, the latching connection 25, 26 is released, so that it is possible to move the mouthpiece cover 20 and thus make the mouthpiece of the closure bottom part 11 accessible.

In the embodiment shown in Figures 9 to 11, the latching connection 25, 26 is present only over a small part of the circumference of the cap 12 or of the mouthpiece cover 20 and preferably opposite the film hinge 23. Alternatively, however, it would be conceivable to provide not just one partially circumferential latching connection, but to provide several partially circumferential latching connections between the cap 12 and the mouthpiece cover 20. In this case, the film hinge 23 can be omitted entirely, in particular if the latching connection 25, 26 is provided over the entire circumference or several partial circumferences (interrupted by partial circumferences without a latching connection) on the cap 12 and correspondingly on the mouthpiece cover 20.

List of reference signs

- 10. Container closure
- 11. Closure bottom part
- 12. Cap
- 13. Piercing means
- 14. Fastening region
- 15. Mouthpiece
- 16. Central region
- 171 Circumferential support surface
- 172 Circumferential support surface
- 18. Web
- 19. Central region
- 20. Mouthpiece cover
- 21. Tamper-evident band
- 22. Predetermined breaking point
- 23. Film hinge
- 24. Predetermined breaking point
- 25. Latching hook
- 26. Latching hook
- 27. Projection
- 28. Bevel

PATENT CLAIMS

1. Container closure (10), having a closure bottom part (11) and a cap (12) and also a mouthpiece (15) and means (13) for piercing a closure film, with a tamper-evident band (21) being provided, **characterized in that** the tamper-evident band (21) has a plurality of predetermined breaking points (22) oriented in the axial direction of the container closure (10) and is activated by a spreading procedure.
2. Container closure (10), having a closure bottom part (11) and a cap (12) and also a mouthpiece (15) and means (13) for piercing a closure film, with a tamper-evident band (21) being provided which ensures that the closure film can only be pierced by the means (13) when the tamper-evident band (21) has been activated, **characterized in that** the tamper-evident band (21) has a plurality of predetermined breaking points (22) oriented in the axial direction of the container closure (10) and is activated by a spreading procedure.
3. Container closure (10) according to either of Claims 1 and 2, **characterized in that** the closure bottom part (11) has at least one web (18) arranged approximately in its central region (16) and facing outwards, wherein the at least one web (18) interacts with a predetermined breaking point (22) of the tamper-evident band (21).
4. Container closure (10) according to Claim 3, **characterized in that** a plurality of webs (18) distributed over the circumference of the closure bottom part (11) are provided.
5. Container closure (10) according to either of Claims 3 and 4, **characterized in that** the web (18) is oriented parallel to the vertical axis of the container closure (10).
6. Container closure (10) according to either of Claims 3 and 4, **characterized in that** the web (18) is oriented in deviation from the vertical axis of the container closure (10).

7. Container closure (10) according to either of Claims 1 and 2, **characterized in that** the closure bottom part (11) has, above its fastening region (14), a central region tapering conically in the direction of the mouthpiece (15).
8. Container closure (10) according to any one of the preceding claims, **characterized in that** the closure bottom part (11) has, above its fastening region (14), at least one at least partially, preferably completely, circumferential support surface (17.1, 17.2), which interacts with a contact surface of the cap (12), preferably with the circumferential lower edge of the tamper-evident band (21).
9. Container closure (10) according to any one of the preceding claims, **characterized in that** the closure bottom part (11) has at least one latching connection, wherein the cap (12) also has at least one latching connection interacting with the latching connection of the closure bottom part (11).
10. Container closure (10) according to any one of the preceding claims, **characterized in that** the mouthpiece cover (20) is arranged on the cap (12) via a film hinge (23).
11. Container closure (10) according to any one of the preceding claims, **characterized in that** the mouthpiece cover (20) is arranged on the cap (12) via at least one predetermined breaking point (24).
12. Container closure (10) according to any one of the preceding claims, **characterized in that** the mouthpiece cover (20) is connected to the cap (12), in particular to the central region (19) of the cap (12), via at least one latching connection that can be released by an external force.