Title: SQUEEZE-BOTTLE DISPENSER, AS WELL AS HOLDER FOR A SQUEEZE-BOTTLE DISPENSER, SQUEEZE BOTTLE AND METHOD OF MANUFACTURING A SQUEEZE BOTTLE

Abstract: A squeeze bottle for a squeeze-bottle dispenser, comprising a substantially flat body part which surrounds a tank and which is provided with front and back walls arranged so as to rebound after squeezing, which body part ends, on a bottom side, via a shoulder part, in a neck part, wherein the squeeze bottle is provided with a number of stiffening strips extending over neck part, shoulder part and at least a part of the body. The invention further relates to a squeeze-bottle dispenser, a holder for a squeeze-bottle dispenser and to a method of manufacturing a squeeze bottle.
Title: Squeeze-bottle dispenser, as well as holder for a squeeze-bottle dispenser, squeeze bottle and method of manufacturing a squeeze bottle

The invention relates to a squeeze-bottle dispenser, a holder for a squeeze-bottle dispenser, a squeeze bottle and to a method of manufacturing a squeeze bottle.

Squeeze-bottle dispensers are generally known and are *inter alia* used for skincare products, such as for instance bath and shower gel, in hotel bathrooms.

The squeeze-bottle dispenser usually comprises a squeeze bottle which is attached to the wall of the bathroom, near bath or shower, with the aid of a dispenser holder.

Such a squeeze bottle holder needs to be sufficiently strongly connected with the wall via the holder, *inter alia* to prevent theft and vandalism and to allow clutching as a support when a hotel guest threatens to slip.

For this purpose, in practice, the squeeze-bottle dispenser is, on the top and bottom side, connected, via supports, with a common baseplate provided on the wall.

Although clamping the squeeze-bottle dispenser with such a holder in a substantially C-shaped manner in side elevational view provides a strong attachment, it also has a number of disadvantages. For instance, the squeeze bottle is less well accessible to be squeezed and the squeeze bottle is not very prominently present.

The invention contemplates a squeeze-bottle dispenser, a holder for a squeeze-bottle dispenser, a squeeze bottle and method of manufacturing a squeeze bottle with which, while preserving the advantages mentioned, the disadvantages mentioned can be obviated. For this purpose, the invention
provides a squeeze bottle according to claim 1, a squeeze-bottle dispenser according to claim 9, a holder for such a squeeze bottle according to claim 18, and a method of manufacturing a squeeze bottle according to claim 23.

By providing the body of the squeeze bottle with stiffening strips extending over neck, shoulder and at least a part of the body, the squeeze bottle of the dispenser can have a sufficiently stiff design to be anchored to the bottom side in a reliable manner, leaving the top side clear. Because the dispenser is provided with a collar for cooperation with the shoulder of the bottle, via the baseplate, the squeeze-bottle dispenser can be connected with the wall in a substantially L-shaped manner with the aid of the holder, so that the squeeze bottle remains well accessible to be clutched and the squeeze bottle can be prominently present.

So, the stiffening strips extending over neck, shoulder and at least part of the body of the squeeze bottle make it possible to sufficiently reliably connect the squeeze bottle, via the collar, with an L-shaped construction substantially L-shaped in side elevational view, leaving the top side clear.

As an addition to the stiffening strips or as an alternative for these, the neck part may be coupled with a coupling sleeve surrounding the neck part. The coupling sleeve may then be engaged by the dispenser holder to guarantee a sufficiently strong coupling between squeeze-bottle dispenser and holder. The coupling sleeve is preferably detachably coupled with the neck part of the squeeze bottle. The coupling sleeve may cooperate with the neck part, for instance via a threaded connection.

The dispenser outlet is preferably coupled with the neck part via the coupling sleeve. In such an embodiment, the dispenser outlet may be formed so as to be integrated with the coupling sleeve, but coupling sleeve and dispenser outlet may of course also be designed as two separate parts.

With such a combination of squeeze bottle and holder, theft and vandalism can be prevented and sufficient support can be provided when a
hotel guest threatens to slip, while the squeeze bottle is better accessible to be squeezed and the body of the bottle can be prominently present.

Due to the prominent presence of the squeeze bottle, it can be decided to have the body part of the bottle correspond with a squeeze bottle intended for the retail trade with regard to shape and appearance. In this manner, the squeeze bottle for the dispenser is, to the hotel guest, apparently identical to the squeeze bottle available in retail stores. Thus, it can be effectively communicated to the hotel guest that the skincare product used by him in the hotel corresponds with a product available in retail stores.

In an advantageous manner, the squeeze bottle is a squeeze bottle available in retail stores and the coupling sleeve engages the neck part in the same manner as the cap supplied together with the squeeze bottle in retail stores. Due to use of the coupling sleeve, for the squeeze bottle dispenser, use can thus be made of a conventional, already mass-produced squeeze bottle. After the conventional manufacturing process, the cap can then for instance be replaced by a coupling sleeve with dispenser outlet in order to manufacture a squeeze-bottle dispenser. Here, the coupling sleeve can ensure a sufficiently strong and reliable coupling between squeeze bottle and dispenser holder. In that case, designing a special squeeze bottle for the squeeze-bottle dispenser is no longer needed. This situation will mainly occur when the squeeze bottle intended for the retail trade has already been provided with stiffening strips or has a relatively stiff construction in itself.

Further advantageous embodiments of the invention are shown in the subclaims. The invention will be further elucidated on the basis of two exemplary embodiments shown in a drawing, in which:

Fig. 1 A shows a perspective view of a tubular string extruded from thermoplastic synthetic material, which string has a substantially constant diameter and a wall thickness varying in circumferential direction;
Fig. 1B shows a diagrammatic top plan view of the tubular string of Fig. 1A;

Fig. 2 shows a diagrammatic perspective view of a squeeze bottle formed from the string of Fig. 1A by means of blow-molding;

Fig. 3 shows a diagrammatic perspective view of a dispenser outlet for coupling to a neck part of the squeeze bottle of Fig. 2;

Fig. 4 shows a diagrammatic side elevational view of a squeeze-bottle dispenser formed with the squeeze bottle of Fig. 2 and the dispenser outlet of Fig. 3, which is, in a holder, connected with a wall in a substantially L-shaped manner;

Fig. 5 shows a diagrammatic front view of the holder of Fig. 4, where the holder is at least partly cutaway;

Fig. 6 shows a diagrammatic perspective view in exploded condition of a squeeze-bottle dispenser with coupling sleeve which is included in a dispenser holder;

Fig. 7 shows a perspective rear view in detail of the dispenser holder of Fig. 6; and

Fig. 8 shows a perspective front view of Fig. 6 in assembled condition.

The drawings are only diagrammatic representations of exemplary embodiments which are given by way of non-limiting examples. In the Figures, same or corresponding parts are designated by the same reference numerals.

Fig. 1 shows, in diagrammatic perspective view, a tubular string 1 extruded from thermoplastic synthetic material, for instance HDPE or PE.

As is clearly visible in Fig. 1B, the string has a substantially constant diameter with a wall thickness W varying in circumferential direction. In particular, the string 1 is provided with two opposite thickened wall parts 2 extending in longitudinal direction of the string. The string has a substantially cylindrical outer wall 3. The thickenings 2 have been provided on the inner wall 4.
With the aid of the string shown in Fig. 1, the squeeze bottle 10 shown in Fig. 2 is formed with the aid of a combined process of extrusion and blow-molding known per se. In such a process, in a first step, the tubular string shown in Fig. 1 is extruded and introduced into a mold cavity. The mold cavity may, for instance, be formed by two mold halves placed around the string 1 while it is in plastic condition. A lower end 5 of the string 1 can then be cut off by the cooperating parting surfaces of the mold halves. An upper part 6 of the string can then be enclosed by the mold cavity, thereby forming the neck part of the bottle. Then, via the upper side 6, gas is supplied to the interior of the string 1 under elevated pressure, so that the wall of the string 1 plastically deforms and the outer wall 3 is pressed against the mold cavity, thereby forming the squeeze bottle 10.

After cooling of the formed squeeze bottle 10, the mold halves can be opened and the bottle can be removed. In the blow-molded squeeze bottle 10, the opposite thickened wall parts 2 of the string 1 form stiffening ribs 19 extending over neck part, shoulder part and at least a part of the body of the bottle. The thickened wall parts 2 in the string can then, for instance, be aligned with the parting line in the mold cavity, that is, the stiffening strips 19 are located in the parting surface of the formed squeeze bottle 10.

With reference to Fig. 2, the squeeze bottle 10 comprises a substantially flat, elongated body part 11 surrounding a tank 12. The body part 11 is provided with front and back walls 13, 14 which rebound after squeezing. The front wall 13 and the back wall 14 are, on their sides, connected via side walls 15 and are, on a top side, connected via a top wall 16. On the bottom side, the body part ends, via a shoulder part 17, in a neck part 18. The walls of the bottle 10 blend into each other.

In the squeeze bottle 10, the thickened wall parts 2 of the string 1 form continuous stiffening strips 19 extending over the neck part 18, shoulder part 17 and at least a part of the body 11. The stiffening strips 19 are thus integrated in the wall of the squeeze bottle 10, in particular in the
side walls 15 of the squeeze bottle 10 and at least a part of the top wall 16 of
the squeeze bottle 10. The stiffening strips 19 are formed by thickened wall
parts extending between front wall 13 and back wall 14. The thickened wall
parts have a greater maximum thickness than wall parts extending along
the front wall 13 and the back wall 14. The stiffening strips 19 are
preferably provided on the inside of the squeeze bottle 10 as two opposite
wall thickenings, as shown here. It is noted that, within this context,
thickened is understood to mean a thickening of the wall compared with a
situation when the wall would be formed from a string with constant
diameter and constant wall thickness in circumferential direction.

The neck part 18 of the squeeze bottle has a basically cylindrical
outer wall 3A which corresponds with the cylindrical outer wall of the
string 1 with respect to shape and dimensions. During the blow-molding, a
flange edge 20 extending outwards has been formed to the neck part 18.
Here, the flange edge 20 has a ring-shaped, continuous design. Of course
such a flange edge may also have a discontinuous design and may then, for
instance, be embodied in two or more cams.

The thermoplastic material of the string 1 and the squeeze bottle 10
formed therewith is preferably opaque, so that the degree of filling of the
tank 12 cannot be observed from outside via the wall of the squeeze bottle.

With reference to Fig. 3, therein a dispenser outlet 30 is shown for
coupling with the neck part 18 of the squeeze bottle 10. The dispenser
outlet 30 comprises a tube part 32 provided with a flexible valve 31. The
flexible valve 31 may, for instance, be designed as a diaphragm valve which
is built up from flexible lips, for instance from silicone material. The
dispenser outlet 30 is, for instance, slid into a light drive fit over the outer
wall 3A of the neck part 18. Optionally, the coupling may be reinforced with
glue, or, to the neck part, thread or stops may be formed which cooperate
with corresponding threads or stops on the tube part 32.
The squeeze bottle 10 provided with a dispenser outlet 30 forms a squeeze-bottle dispenser 40. For operation of the dispenser, the front and back walls 13, 14 can be moved towards each other by taking the flat body part 11 between the thumb and opposite fingers and moving the thumb and opposite fingers towards each other. By squeezing the front and back walls 13, 14, skincare product present in the tank 12 of the squeeze bottle 10 can be pushed, via the neck part and the tube part 32, through the flexible valve 31 out of the dispenser outlet 30, so that a load of product is released by the squeeze-bottle dispenser 40. After release of the front and back walls, they rebound to their starting condition and the flexible valve 31 will close again. The flow resistance of the flexible valve 31 prevents further outflow until front and back wall 13, 14 are squeezed towards each other again.

With reference to Figs. 5 and 6, it is shown that the squeeze-bottle dispenser 30 is connected with the wall with the aid of a holder 50, with a substantially L-shaped construction in side elevational view, leaving the body part 11 of the squeeze bottle 10 of the squeeze-bottle dispenser 40 clear. The holder 50 comprises a carrier 51 which is connected with a baseplate 53 via a support 52. The carrier 51 is provided with a continuous opening 54. In the opening 54, the shoulder part 17 and the neck part 18 of the squeeze-bottle dispenser are included, thereby leading through the dispenser outlet 30. This is clearly visible in Fig. 6. The carrier 51 is provided with two spring-mounted beards 55 provided opposite each other. The beards cooperate with the flange edge 20 to the neck part 18 of the squeeze bottle 10. When the squeeze bottle is inserted into the holder in the direction of the arrow P, the flange edge 20 pushes the beards 55 out by cooperation with running surfaces 56. After the flange edge 20 has passed the running surfaces 56, the beards 55 rebound and the flange edge is clamped in the carrier 51 with the aid of clamping surfaces 57 via the beards 55, as shown in Fig. 6. Due to the stiffening strips 19 provided in the
squeeze bottle 10, this clamping of the squeeze bottle can have a sufficiently stiff design to prevent pulling loose of the squeeze-bottle dispenser 40. With the aid of the clamping surfaces 57, the shoulder part 17 of the squeeze bottle 10 is clamped on a correspondingly formed collar 58 in the carrier. This clamping is sufficiently stiff to let the squeeze bottle 10 be a support when it is clutched by a hotel guest threatening to slip in the shower. The stiffening strips 19 prevent the squeeze bottle 10 from bending and buckling. The body part 11 of the squeeze bottle 10 is left clear by this construction which is substantially L-shaped in side elevational view, so that it is well accessible to be squeezed and it can further be arranged in a conspicuous manner.

The skincare product present in the tank 12 of the squeeze bottle 10 is provided with a float indicator 33. When the degree of filling of the squeeze-bottle dispenser 40 threatens to become too low, the flow indicator 33 can be observed via the transparent tube part 32 of the dispenser outlet 30. Observation of the float indicator 33 can be used by the domestic management of the hotel as a signal that the squeeze-bottle dispenser 40 soon needs to be replaced by a new squeeze-bottle dispenser 40 and the old squeeze-bottle dispenser 40 needs to be thrown away. Because the degree of filling of the squeeze-bottle dispenser 40 cannot be observed via the body 11 of the squeeze bottle 40, a hotel guest who uses the squeeze-bottle dispenser can be given the feeling that he is the first user of the squeeze-bottle dispenser.

When the squeeze-bottle dispenser 40 is to be replaced, the clamping surfaces 57 can be uncoupled from the flange edge 20, so that the squeeze-bottle dispenser 40 can be withdrawn from the holder 50 in the opposite direction of the arrow P. For this purpose, the carrier 51 is provided with two insertion openings 59 at the height of the beards 55. Via the insertion openings 59, a two-legged unlocking pin can be inserted into the carrier 51 which, by cooperation with auxiliary running surfaces 60
provided on the beards 55, bend the beards 55 apart during inserting and the clamping surfaces 57 are decoupled from the flange edge 20. After withdrawal of the unlocking pin, the beards 55 can then rebound, so that they are in readiness for engaging a flange edge 20 of a new squeeze-bottle dispenser 40.

Due to the prominent presence of the squeeze bottle 10, it can be decided to have the body part 11 of the bottle correspond with a squeeze bottle intended for the retail trade with respect to shape and appearance. In this manner, starting from a particular type of consumer bottle, a body part 11 can be designed that corresponds with the body part of the consumer bottle with respect to shape and appearance. The neck part 18 can be geared to cooperation with the dispenser outlet 30 and the holder 50. The shoulder part serves as shape transition between the body part 11 specifically formed for that model of squeeze bottle and the neck part 18 generically formed for the holder 50. By detachably designing the collar 58 of the carrier 51, it can be effected that, for each model of squeeze-bottle dispenser, the transition part can be supported to a sufficient extent.

Fig. 6 shows an alternative embodiment of the invention, where the squeeze bottle 10 is designed without stiffening strips 19. This squeeze bottle can be completely identical to a squeeze bottle which is mass-produced for the retail trade. The squeeze bottle 10 comprises a body part 11 surrounding a tank. The body part 11 is provided with walls which rebound after squeezing. In this and the previous embodiment, the body part of the squeeze bottle has a substantially flat, elongated design. It will be clear that the body part 11 may of course also have a different shape, for instance a cylinder with a more oval or circular diameter.

On the bottom side, the body part 11 ends, via a shoulder part 17, in a neck part 18. The neck part 18 is coupled with a coupling sleeve 60. The coupling sleeve 60 surrounds the neck part 18. The coupling sleeve 60
cooperates with the substantially cylindrical outer wall 3a of the neck part 18 via a threaded connection 61.

A dispenser outlet 30 is coupled with the neck part 18 via the coupling sleeve 60. In this embodiment, dispenser outlet 30 and the coupling sleeve 60 are assembled from separate parts. It will be clear that coupling sleeve 60 and dispenser outlet 30 may also be formed as one part.

The coupling sleeve 60 engages the neck part 18 in the same manner as a cap supplied with the squeeze bottle in retail stores. Here, the coupling sleeve 60 is designed as a detachable part which can be attached around the neck part 18 instead of a cap. The dispenser outlet 30 is provided with a flexible valve 31 which, during use, can release a load of product via the dispenser outlet 30, only upon squeezing of the walls of the body 11 of the squeeze bottle 10. Before it is put into use, the squeeze-bottle dispenser 40 can be closed off with the aid of a cap 62 included in the dispenser outlet 30.

The coupling sleeve 60 is provided with edges 63 for cooperation with spring-mounted hooks 64 in the dispenser holder 50.

The squeeze-bottle dispenser 40 is inserted into the dispenser holder 50 from above and is clamped in the dispenser holder 50 during use in that the hooks 64 cooperate with the edges 63 of stops in the coupling sleeve 60.

The shoulder part 17 of the squeeze bottle 10 is pressed on the correspondingly formed surfaces of the correspondingly formed collar 58.

In order to be able to replace the squeeze bottle 40, the dispenser holder 50 is provided with insertion openings 59 in the carrier 51 of the dispenser holder 50. Via the insertion openings 59, a two-legged unlocking pin can be inserted into the carrier 51, which pin can push the hooks 64 away against their spring action, so that they leave the edges 63 of the coupling sleeve 60 clear. The squeeze-bottle dispenser 40 can now be withdrawn reversely to the insertion direction, in an upward withdrawing direction.
For the rest, the operation and the construction of the squeeze-bottle dispenser 40 and the dispenser holder 50 of the second exemplary embodiment are substantially equal to those of the first exemplary embodiment.

The invention is not limited to the embodiments discussed herein. Thus, aspects of the exemplary embodiments shown can be considered inventions in themselves. Also, aspects of the embodiments shown can be combined. In particular, more or fewer than two stiffening strips can be provided and instead of spring-mounted beards, a different type of clamping mechanism may be provided in the holder. Further, the squeeze bottle may be designed without a flange edge.

Such variants will be clear to a skilled person and are understood to be within the scope of the invention as set forth in the following claims.
CLAIMS

1. A squeeze bottle for a squeeze-bottle dispenser, comprising a substantially flat body part which surrounds a tank and which is provided with front and back walls arranged so as to rebound after squeezing, which body part ends, on a bottom side, via a shoulder part, in a neck part, wherein the squeeze bottle is provided with a number of stiffening strips extending over neck part, shoulder part and at least a part of the body.

2. A squeeze bottle according to claim 1, wherein the stiffening strips are integrated in the wall of the squeeze bottle.

3. A squeeze bottle according to claim 1 or 2, wherein the stiffening strips have been formed by thickened wall parts extending between front and back wall, which wall parts have a greater maximum thickness than wall parts extending along front and back side.

4. A squeeze bottle according to at least one of the preceding claims, wherein the stiffening strips have provided on the inside of the squeeze bottle as wall thickenings.

5. A squeeze bottle according to at least one of the preceding claims, wherein the neck part is provided with a flange edge extending outwards.

6. A squeeze bottle according to at least one of the preceding claims, wherein the neck part is provided with a substantially cylindrical outer wall.

7. A squeeze bottle according to at least one of the preceding claims, wherein the wall of the squeeze bottle is manufactured from thermoplastic synthetic material, preferably opaque thermoplastic synthetic material.

8. A squeeze bottle according to at least one of the preceding claims, wherein the bottle has been manufactured from an extruded tube by means of blow-molding.
9. A squeeze-bottle dispenser, comprising a squeeze bottle with a body part which surrounds a tank and which is provided with front and back walls rebounding after squeezing, which body part ends, on a bottom side, via a shoulder part, in a neck part, further comprising a dispenser outlet coupled with the neck part.

10. A squeeze-bottle dispenser according to claim 9, wherein the squeeze bottle is designed according to any one of claims 1-8.

11. A squeeze-bottle dispenser according to claim 9 or 10, wherein the neck part is coupled with a coupling sleeve which surrounds the neck part.

12. A squeeze-bottle dispenser according to claim 11, wherein the dispenser outlet is coupled with the neck part via the coupling sleeve.

13. A squeeze-bottle dispenser according to claim 11 or 12, wherein the coupling sleeve cooperates with the neck part via a threaded connection.

14. A squeeze-bottle dispenser according to any one of the preceding claims 9-13, wherein the squeeze bottle is a squeeze bottle available in retail stores and wherein the coupling sleeve engages the neck part in the same manner as the cap supplied with the squeeze bottle in retail stores.

15. A squeeze-bottle dispenser according to any one of claims 9-14, wherein the dispenser outlet comprises a tube part from transparent synthetic material which is provided with a flexible valve.

16. A squeeze-bottle dispenser according to claim 15, further comprising a float indicator.

17. A squeeze-bottle dispenser according to at least one of the preceding claims 9-16, wherein the tank of the squeeze bottle is filled with a skincare product.

18. A holder for a squeeze-bottle dispenser, comprising a carrier which is connected with a baseplate via a support, which carrier is provided with a continuous opening for including the shoulder and the neck of a squeeze-bottle dispenser according to at least one of claims 9-17, leading through a dispenser outlet.
19. A holder according to claim 18, wherein the carrier is provided with at least one spring-mounted hook for cooperation with a correspondingly formed edge to a neck part or a coupling piece of a squeeze bottle coupled with the neck part.

20. A holder according to claim 19, wherein the carrier is provided with an insertion opening for inserting an unlocking pin for unlocking the hook cooperating with the edge.

21. A holder according to at least one of the preceding claims, further comprising a detachable collar for cooperation with a correspondingly formed shoulder part of a squeeze bottle.

22. A holder according to any one of the preceding claims 18-21, provided with a squeeze-bottle dispenser according to any one of claims 9-17.

23. A method of manufacturing a squeeze bottle, wherein, in a first step, from a thermoplastic synthetic material, a tubular string is extruded with a substantially constant diameter and a wall thickness varying in circumferential direction, and wherein, in a second step, the string is formed into a bottle by means of blow-molding.

24. A method according to claim 23, wherein shape and appearance of a body part of the bottle have a design corresponding with a squeeze bottle intended for the retail trade and wherein a neck part and a shoulder part are, with respect to shape, designed for cooperation with a holder for the squeeze-bottle dispenser.