TITLE

BREAST SHIELD WITH MEDIA SEPARATION

TECHNICAL FIELD

The present invention relates to a breastshield unit, a media separation device and a breastshield.

PRIOR ART

Devices for expressing human breastmilk are well known. In principle, there are two different types: the first are operated manually, i.e. the underpressure needed to express milk is generated by manual actuation of the vacuum pump. In the devices of the second type, the vacuum pump is operated with an electric motor, it being possible for the vacuum pump to be connected to the power supply network and/or to be operated via a battery or another energy accumulator.

These manual or motor-operated vacuum pumps are connected to a breastshield either directly or via vacuum lines. The breastshield usually has a breastshield body for receiving the nipple. The breastshield body is usually supplemented by a funnel which bears sealingly on the mother's breast, such that a leaktight space arises around the nipple in the funnel and in the breastshield body part, in which space the underpressure generated by the vacuum pump is applied in cycles. Expressed milk flows through an opening of the breastshield into a milk collection container. This too can be done either directly or via a line. The greater the empty volume in the breastshield, the more power the breastpump has to expend in order to obtain a desired underpressure in

outside, as a result of which the underpressure is generated directly in the interior of the insert.

The known media separation devices offer good protection against contamination of the vacuum areas by milk. However, they reduce the pump output, since they in each case have to be stretched in order to transfer the vacuum. The media separation devices also have to be changed relatively often, since the material suffers fatigue and slackens as a result of the stretching.

DISCLOSURE OF THE INVENTION

An object of the invention is therefore to provide an improved media separation.

This object is achieved by a breastshield unit, a media separation device and a breastshield.

The breastshield unit according to the invention for use in an appliance for expressing human breastmilk by means of underpressure has a breastshield body with a first opening for receiving a nipple of a mother's breast and with a second opening as a drain for expressed breastmilk. The breastshield unit also has a media separation device which separates expressed milk from an underpressure source. It is arranged in the breastshield body. The media separation device has a through-channel which connects the first opening of the breastshield body to the second opening of the breastshield body, wherein the through-channel has a through-opening, which is enlargeable when subjected to an underpressure from outside. The through-opening is formed by walls which, when subjected to an underpressure from outside, are movable away from each other, largely without stretching, in order to enlarge

CLAIMS

1. Breastshield unit for use in a device for expressing human breastmilk by means of underpressure, wherein the breastshield unit comprises a breastshield body with a first opening for receiving a nipple of a mother's breast and with a second opening as a drain for expressed breastmilk, wherein the breastshield unit further comprises a media separation device which separates expressed milk from an underpressure source and which is arranged in the breastshield body, wherein the media separation device comprises a through-channel which connects the first opening of the breastshield body to the second opening of the breastshield body, wherein the through-channel comprises a through-opening, which is enlargeable when subjected to an underpressure from outside, wherein the through-opening is formed by walls which, when subjected to an underpressure from outside, are movable away from each other, largely without stretching, in order to enlarge the through-opening, wherein the media separation device is arranged in a twisted configuration in the breastshield body.

2. Breastshield unit according to Claim 1, wherein the through-opening, in a maximally opened state, has a non-circularly symmetrical inner cross section.

3. Breastshield unit according to Claims 1 or 2, wherein the through-channel comprises an inner cross section that changes along the length of the through-channel.

4. Breastshield unit according to any one of Claims 1 to 3, wherein the media separation device comprises at least one double wall with two individual walls, wherein the individual walls are the walls movable away from each other.

5. Breastshield unit according to Claim 4, wherein several double walls are present, which are distributed about a circumference of the media separation device.

6. Breastshield unit according to Claims 4 or 5, wherein the individual walls of a double wall are delimited by a common outer web and, moreover, by in each case a free edge, wherein the free edge has a parabolic shape.

7. Breastshield unit according to any one of Claims 1 to 6, wherein the media separation device comprises a main body, which is shaped such that it forms, on the inside, two funnels with narrow ends inclined towards each other.

8. Breastshield unit according to any one of Claims 1 to 7, wherein the media separation device comprises, in the area of the through-opening, a cross-shaped or blossom-shaped cross section.

9. Breastshield unit according to any one of Claims 1 to 8, wherein the through-channel in the rest state, i.e. when not subjected to an underpressure from outside, is designed in the form of a double funnel, wherein a first broad end forms an inlet opening and a second broad end forms an outlet opening, and wherein the double funnel between these two ends tapers towards the through-opening.

10. Breastshield unit according to any one of Claims 1 to 9, wherein the media separation device is

arranged with pretensioning in the breastshield body.

11. Breastshield unit according to any one of Claims 1 to 10, wherein the media separation device is an insert element, which is arranged detachably and removably in the breastshield body.

12. Breastshield unit according to any one of Claims 1 to 11, wherein the media separation device is made of a flexible material.

13. Media separation device of a breastshield unit according to any one of Claims 1 to 12, wherein the media separation device is an insert element for arranging in a breastshield body of the breastshield unit, wherein the insert element comprises a through-channel which connects a first opening of the breastshield body to a second opening of the breastshield body, and wherein the through-channel comprises a through-opening which is enlargeable when subjected to an underpressure from outside, wherein the through-opening is formed by walls which, when subjected to an underpressure from outside, are movable away from each other, largely without stretching, in order to enlarge the through-opening, wherein the media separation device is arranged in a twisted configuration in the breastshield body.

14. Breastshield of a breastshield unit according to any one of Claims 1 to 13, wherein the breastshield is designed to receive and hold, as intended, a media separation device in the form of a twisted insert element with pretensioning.