CLAIMS

1. A cleaning apparatus for a beverage preparation machine, said beverage preparation machine comprising a fluid processing device (10), comprising a fluid processing body (12), said fluid processing body (12) comprises at least one of the following means:

- inlet means (18) for introducing a fluid substance into a container (C) for the preparation of a beverage product by mixing of said fluid substance with an ingredient contained in said container (C);
- outlet means (20) for allowing the outflow of said beverage product from said container (C) once said fluid substance is introduced into said container (C) and is mixed with said ingredient,

the cleaning apparatus comprising at least said fluid processing device (10) comprising a fluid processing body (12) provided with an outflow portion (14) for the outflow of a cleaning fluid,

wherein the cleaning apparatus further comprises a cleaning device (52) comprising:

- a cleaning body comprising one or more movable elements (54, 56) defining a chamber for housing at least a portion of said fluid processing body (12); and
- movement means (60; 62, 64, 66; 76) for moving said one or more movable elements (54, 56) between an active position and an inactive position,

wherein said one or more movable elements (54, 56) and said fluid processing body (12) are dimensioned and shaped such that:

- in said active position, said one or more movable elements (54, 56) enclose at least a portion of said fluid processing body (12) in said chamber, such that said cleaning fluid can circulate in a space between said fluid processing body (12) and said one or more movable elements (54, 56) when said cleaning fluid is ejected from the outflow portion (14) of said fluid processing body (12); and
- in said inactive position, said one or more movable elements (54, 56) are moved away from said fluid processing body (12), such that said fluid processing body (12) and said container (C) can be functionally connected together for the preparation of said beverage product and/or the outflow of said beverage product,

characterized in that said fluid processing body (12) comprises both said inlet means (18) for introducing said fluid substance into said container (C) and said outlet means (20) for allowing the outflow of said beverage product from said container (C).

2. The cleaning apparatus according to claim 1, characterized in that said cleaning body is provided with at least two movable elements (54, 56), wherein said movement means (60; 62, 64, 66; 76) comprise a motorized actuation system (60) for automatically moving said at least two movable elements (54, 56) relatively one to another between at least one of:

- said active position, wherein said at least two movable elements are connected together and define said chamber, and
- said inactive position, wherein said at least two movable elements (54, 56) are moved away one to another and open said chamber, and vice versa.

3. The cleaning apparatus according to claim 1 or 2, characterized in that said cleaning device (52) is provided with at least one outlet (58) for discharging said cleaning fluid, said at least one outlet (58) preferably consisting of a conduit provided on at least one of said movable elements (54, 56).

4. The cleaning apparatus according to any claims 1 to 3, characterized in that both said fluid processing body (12) and each of said movable elements (54, 56) are connected to a base portion (74), wherein said movement means (60; 62, 64, 66; 76) comprise one or more actuation arms (62, 64) for connecting each of said movable elements (54, 56) to said base portion (74).

5. The cleaning apparatus according to claim 4, characterized in that said base portion (74) is provided with a coupling portion (46), arranged for removably coupling said base portion (74) to the beverage preparation machine, and with at least one inlet conduit (82) of said cleaning fluid.

6. The cleaning apparatus according to claim 2, characterized in that said movement means (60; 62, 64, 66; 76) comprise one or more actuation arms (62, 64) which are connected to each movable element (54, 56), said actuation arms (62,

64) being actuated by said motorized actuation system (60) between at least one of said active position and said inactive position and vice-versa.

7. The cleaning apparatus according to claim 6, characterized in that said one or more actuation arms (62, 64) are hinged around a respective rotation pin (66; 68) oriented:

- along a substantially vertical axis (B), such that each movable element (54, 56) is rotated on a substantially horizontal plane between said active position and said inactive position and vice-versa; or
- along a substantially horizontal axis (K), such that each movable element (54, 56) is rotated on a substantially vertical plane between said active position and said inactive position and vice-versa.

8. The cleaning apparatus according to claim 6, characterized in that said one or more actuation arms (62, 64) are hinged around a respective rotation pin (68) oriented along a first axis (K), preferably a substantially horizontal axis (K), such that each movable element (54, 56) is rotated between said active position and said inactive position and vice-versa, wherein the fluid processing device (10) too is rotatable around a second axis (D), preferably a substantially vertical axis (D), to selectively engage and disengage with said cleaning device (52).

9. The cleaning apparatus according to any claims 6 to 8, characterized in that said motorized actuation system (60) comprises a gear mechanism (70), wherein a sliding transmission device (72) is interposed between each movable element (54, 56) and said gear mechanism (70), said sliding transmission device (72) being connected, at one end thereof, to at least one of said actuation arms (62, 64) and, at the opposite end thereof, to said gear mechanism (70) for moving each movable element (54, 56) between at least one of said active position and said inactive position and vice-versa.

10. The cleaning apparatus according to any claims 6 to 8, characterized in that said movement means (60; 62, 64, 66; 76) comprise at least one elastic element (76) that maintains said movable elements (54, 56) in said inactive position, wherein said motorized actuation system (60) comprises a cam mechanism (80) provided

with at least one pusher element (78) interposed between said movable elements (54, 56), said cam mechanism (80) being actuated by said motorized actuation system (60) for pushing said movable elements (54, 56) against said at least one pusher element (78), opposing the elastic force of said at least one elastic element (76), to obtain said active position.

11. The cleaning apparatus according to any claims 1 to 10, characterized in that said one or more movable elements (54, 56) are shell-shaped, and in that the outer surface of said fluid processing body (12) has a shape that is substantially identical to the shape of the internal surface of said one or more movable elements (54, 56).

12. The cleaning apparatus according to any claims 1 to 11, characterized in that the average distance between the outer surface of said fluid processing body (12) and the internal surface of said one or more movable elements (54, 56), in said active position, is preferably less than 5 mm, more preferably less than 3 mm, and even more preferably less than 1 mm.

13. The cleaning apparatus according to any claims 1 to 12, characterized in that the volume of the chamber defined by the one or more movable elements (54, 56), in their active position, is less than 100 ml, preferably less than 50 ml, and more preferably less than 35 ml.

14. A beverage preparation machine (1) comprising:

- a fluid circulation system for a fluid substance, said fluid circulation system comprising at least one fluid source (2), at least one fluid pump (3) and at least one fluid circulation conduit (6);
- at least one container holder (7) adapted for receiving a corresponding container (C); and
- a cleaning apparatus according to any claims 1 to 13,

wherein said cleaning apparatus, as well as said fluid processing device (10), is part of the fluid circulation system.