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Bravilor Holding B.V. te Heerhugowaard.

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Uitvinder(s):
Johannes Cornelis van Hattem te Amerongen.

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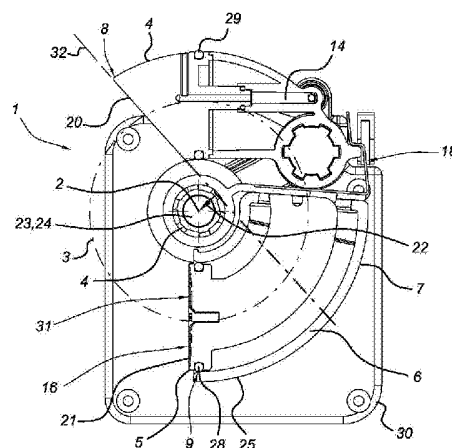
Gemachtigde:
ir. M.F.J.M. Ketelaars c.s. te Den Haag.

(54)

Beverage preparation device.

(57)

The invention relates to a beverage preparation device (1), comprising a central axis (2) with a brewing plane perpendicular to the central axis, wherein the brewing plane comprises a curved trajectory (3), curved with respect to the central axis, a first (4) and second (5) compression element, arranged for movement relative to each other along the curved trajectory, extending perpendicular to the curved trajectory, a brewing chamber (6) arranged for movement relative to the first and second compression elements along the curved trajectory, the brewing chamber having a tubular wall (7) extending parallel to the curved trajectory, wherein the tubular wall is arranged to be moved over an outer circumference (8, 9) of the first and/or second compression elements, a water inlet (14) arranged for discharging water into a brewing space, and a beverage outlet (15) arranged for discharging beverage from the brewing space.



Beverage preparation device

Field of the invention

5 The invention relates to a beverage preparation device, such as used for preparing coffee, in particular espresso.

Background of the invention

10 Beverage preparation devices using a horizontally arranged brewing chamber and corresponding horizontally or vertically arranged pistons are known in practice. A problem with so arranged beverage preparation devices (in particular horizontal espresso brewers) is that they take up a lot of space.

 An object of the present invention is thus to provide a beverage preparation
15 device, which takes up less space.

Summary of the invention

 Hereto, according to the invention, a beverage preparation device is provided,
20 comprising;

- a) a central axis with a brewing plane perpendicular to the central axis, wherein the brewing plane comprises a curved trajectory, curved with respect to the central axis,
- b) a first and second compression element, arranged for movement relative to each other along the curved trajectory, extending perpendicular to the curved trajectory,
- 25 c) a brewing chamber arranged for movement relative to the first and/or second compression elements along the curved trajectory, the brewing chamber having a tubular wall extending parallel to the curved trajectory, wherein the tubular wall is arranged to be moved over an outer circumference of the first and/or second compression elements, wherein:
 - 30 i. in an idle position, the first and second compression elements are spaced-apart along the curved trajectory,
 - ii. in a filling position, the tubular wall is moved relative to the first compression element along the curved trajectory, such that a filling space is formed

delimited by the tubular wall and the second compression element, the tubular wall comprising an opening for receiving a powder for preparing the beverage in the filling space,

- iii. in a brewing position, the first and second compression elements are moved towards each other along the curved trajectory to compress the powder, and the tubular wall is moved over the first and second compression elements, such that the first and second compression elements and the tubular wall enclose a brewing space for preparing the beverage with the powder,
- d) a water inlet arranged for discharging water into the brewing space, and
- e) a beverage outlet arranged for discharging beverage from the brewing space.

Thus, a very compact, 'round' design of the beverage preparation device can be realized. Preferably, the curved trajectory concerns a circle being concentric with respect to the central axis.

It should furthermore be noted that after entering the idle position, the device will usually immediately proceed to the filling position to commence a further cycle. Therefore, the device may be idle in the idle position for only a very short period.

Another embodiment relates to an aforementioned device, wherein the central axis extends in a horizontal direction, i.e. the device has an orientation similar to a giant wheel. In certain positions and for certain movements of the brewing chamber and the compression elements, use can be made of gravity. For example, when the beverage is prepared in the brewing space, gravity can be used to discharge the beverage from the brewing chamber.

Another embodiment relates to an aforementioned device, wherein the central axis extends in a vertical direction, as opposed to a horizontal direction. In some instances, such an orientation of the central axis may be beneficial, for instance when the brewing chamber is relatively large and heavy and moving the brewing chamber around the axis would require a lot of energy.

Another embodiment relates to an aforementioned device, wherein the opening is formed by an open longitudinal end, when seen along the curved trajectory, of the tubular wall. Such an opening will be relatively large and can be advantageously used to receive the ingredient powder, without spilling the powder.

Another embodiment relates to an aforementioned device, wherein the first compression element is static. The moving parts will then be formed by the second

compression element and the brewing chamber. Due to the first compression element being static, energy will be saved and the device's mechanical reliability will increase.

Another embodiment relates to an aforementioned device, wherein the second compression element can be dragged along by an outer longitudinal end of the tubular wall of the brewing chamber. This closed longitudinal end will normally be the longitudinal end opposing the (open) longitudinal end comprising the opening for receiving the powder. The above construction essentially only requires the brewing chamber to be driven, again saving energy and improving reliability.

Another embodiment relates to an aforementioned device, wherein the second compression element is provided with a reversible locking mechanism, wherein the reversible locking mechanism is arranged for locking the second compression element in a locked state, preventing movement thereof along the curved trajectory, and unlocking the second compression element in an unlocked state, for allowing the second compression element to be dragged along by the brewing chamber along the curved trajectory. The reversible locking mechanism may be formed by a spring-biased locking mechanism or by a magnetic locking mechanism, wherein a magnet is arranged at the non-compression end of the second compression element and a corresponding piece of metal is arranged on a stationary part of the device (or vice versa).

Another embodiment relates to an aforementioned device, wherein, when the opening is formed by an open longitudinal end of the tubular wall, in the filling position, the opening of the open longitudinal end extends in a horizontal direction. Thus, the ingredient powder can be conveniently deposited in the filling space by using gravity.

Another embodiment relates to an aforementioned device, wherein, in the brewing position, the water inlet is arranged for injecting water in a circumferential space between the tubular wall and the outer circumference of the first compression element, wherein the circumferential space is in fluid connection with the brewing space. This prevents ingredient powder, in particular coffee powder, from getting stuck in the circumferential space, because it is flushed back into the brewing space by the injected water.

Another embodiment relates to an aforementioned device, wherein a compression plane comprising a compression surface of the first and/or second compression element extends at such a perpendicular distance from the central axis,

that the compression surface of the first compression element and the compression surface of the second compression element are parallel in the brewing position, such that an even compression of the powder is obtained.

Another embodiment relates to an aforementioned device, wherein the
5 compression surfaces of the first and second compression elements are elliptical or oval, wherein the ellipse or oval comprises a long axis and a short axis, wherein the long axis runs parallel to the central axis. Such shapes prevent or at least counteract the occurrence of uneven compression of the ingredient powder.

Another embodiment relates to an aforementioned device, wherein the brewing
10 chamber is connected to a drive mechanism to drive the brewing chamber along the curved trajectory.

Another embodiment relates to an aforementioned device, wherein a rotatable shaft is arranged at the position of the central axis, wherein the shaft is part of the drive mechanism, wherein the shaft is driven by a drive motor to drive the brewing chamber
15 along the curved trajectory.

Another embodiment relates to an aforementioned device, wherein an outer circumference of the tubular wall of the brewing chamber is provided with a rack-and-pinion drive mechanism arranged to drive the tubular wall along the curved trajectory. Preferably, the rack is then provided along the outer circumference of the tubular wall,
20 whereas the pinion is connected to a drive motor.

Another embodiment relates to an aforementioned device, wherein the beverage outlet is arranged in the second compression element to obtain an even more compact design of the device.

Another embodiment relates to an aforementioned device, wherein the beverage
25 outlet is provided with a pressure valve. In particular when the ingredient powder is a coffee powder, or more in particular a coffee powder from which espresso is to be made, the pressure valve allows the beverage to be obtained at the right pressure. The powder can be unevenly compressed in some cases, causing uneven distribution of the hot water through the compressed powder. This is prevented by the pressure valve,
30 which opens only when a predetermined pressure value is exceeded.

Another embodiment relates to an aforementioned device, wherein, when the opening is formed by an open longitudinal end of the tubular wall, in the idle position

the opening of the open longitudinal end extends in a vertical direction, wherein the compression surface of the second compression element is aligned with the opening.

Brief description of the drawings

5

An embodiment of a beverage preparation device according to the invention will by way of non-limiting example be described in detail with reference to the accompanying drawings. In the drawings:

Figure 1 shows a schematic perspective view of an exemplary embodiment of a device according to the invention;

Figure 2 shows a cross-section of the device of figure 1 along the brewing plane comprising the curved trajectory, wherein the device is in the idle/end position;

Figure 3 shows a cross-section of the device, analogous to the one shown in figure 2, with the device in the filling position; and

Figure 4 shows a cross-section of the device, analogous to the ones shown in figures 2 and 3, with the device in the brewing position; and

Figure 5 shows a close-up perspective view of the second compression element.

Detailed description of the invention

20

Figures 1-5 will be discussed in conjunction. A beverage preparation device 1, such as for preparing espresso, is shown, comprising a central axis 2 with a brewing plane perpendicular to the central axis 2. The brewing plane comprises a curved trajectory 3, curved with respect to the central axis 2. The curved trajectory 3 preferably is concentric with respect to the central axis 2. The central axis 2 may extend in a horizontal direction, as shown, or a vertical direction. The device 1 is arranged on a mounting plate 30, which can be part of, or connected to, a beverage dispensing machine.

Figure 2 shows a first 4 and second 5 compression element, arranged for movement relative to each other along the curved trajectory 3. The compression elements 4, 5 generally extend perpendicular to the curved trajectory 3. A brewing chamber 6 is furthermore provided, arranged for movement relative to the first 4 and second 5 compression elements along the curved trajectory 3. The brewing chamber 6

has a tubular wall 7, in particular a cylindrical wall, extending parallel to (along) the curved trajectory 3. The tubular wall 7 is arranged to be moved over an outer circumference 8, 9 of the first 4 and/or second 5 compression elements. In the embodiment as shown, the first compression element 4 is fixed/stationary. Both
 5 compression elements 4, 5 may be formed as pistons. This holds in particular for the second compression element 5. The compression elements 4, 5 may have an outer diameter of for instance 5-10 cm, preferably around 5 cm. Preferably, the compression surface of the compression elements 4, 5 is circular, although other shapes are also conceivable. The device 1 as a whole may have an outer diameter (in the brewing
 10 plane) of 10-20 cm, such as about 20 cm, although for preparing larger quantities of beverage larger dimensions are also conceivable. Along the central axis 2, the device may have a 'depth' of for instance, 5-10 cm, such as around 7 cm.

Figure 2 shows the device 1 in an idle position I. The first 4 and second compression elements 5 are then spaced-apart along the curved trajectory 3. The idle
 15 position I can also be viewed as the end position, i.e. the position wherein the brewing process is completed and the spent powder pill is ejected.

Figure 3 shows the device 1 in a filling position II. Therein, the tubular wall 7 is moved relative to the first compression element 4 along the curved trajectory 3, such that a filling space 10 is formed delimited by the tubular wall 7 and the second
 20 compression element 5. The tubular wall 7 comprises an opening 11 for receiving a powder 12 for preparing the beverage in the filling space 10. Preferably, the opening 11 extends horizontally to facilitate filling of the filling space 10 with powder 12. The opening 11 is formed by an open longitudinal end 16, when seen along the curved trajectory 3, of the tubular wall 7.

Figure 4 shows the device 1 in a brewing position III. The first 4 and second 5
 25 compression elements are moved towards each other along the curved trajectory 3 to compress the powder 12. The tubular wall 7 is moved over the first 4 and second 5 compression elements, such that the first 4 and second 5 compression elements and the tubular wall 7 enclose a brewing space 13 for preparing the beverage with the powder
 30 12.

The device 1 furthermore comprises a water inlet 14 arranged for discharging water into the brewing space 13 and a beverage outlet 15 arranged for discharging beverage from the brewing space 13.

In the embodiment of the device 1 as shown in figures 1-5, the second compression element 5 is dragged along by a closed longitudinal end 17 of the tubular wall 7 of the brewing chamber 6 when the device 1 transits from the filling position II (figure 3) to the brewing position III (figure 4). The closed longitudinal end 17 is thereto provided with appropriate edges to pull the second compression element 5 along towards the first compression element 4. On the other hand, when the device 1 transits from the brewing position (III) to the idle position (I), friction caused by the sealing ring 28 (between the second compression element 5 and the brewing chamber 6, i.e. the tubular wall 7) will cause the second compression element 5 to be moved towards its idle position I by the brewing chamber 6.

The second compression element 2 (i.e. the end thereof not needed for compression of the powder) is provided with a spring-biased locking mechanism 18 comprising a clamp (which more or less has properties similar to a leaf spring) with engages a protruding part of the device 1 in the idle position I and the filling position II. The locking mechanism 18 is arranged for locking the second compression element 5 in a locked state, preventing movement thereof along the curved trajectory 3, and unlocking the second compression element 5 in an unlocked state, for allowing the second compression element 5 to be dragged along by the brewing chamber 6 along the curved trajectory 3.

As shown in figure 4, in the brewing position III, the water inlet 14 is arranged for injecting water in a circumferential space 19 between the tubular wall 7 and the outer circumference 8 of the first compression element 5. The tight circumferential space 19 is in fluid connection with the brewing space 13 to allow the injected water to reach the brewing space 13. Due to the injected, hot water first reaching the outer regions of the compressed powder 12 an even distribution of the water throughout the compressed powder 12 is achieved. A sealing ring 29 is provided for preventing the injected water from leaking out at the wrong side of the circumferential space 19, i.e. for making sure that the water is forced towards the brewing space 13 only.

As can be seen in figure 2, a compression plane 32 comprising a compression surface 20 of the first 4 (and/or second compression element 5) extends at such a perpendicular distance 22 from the central axis 2, that the compression surface 20 of the first compression element 4 and the compression surface 21 of the second

compression 5 element are parallel in the brewing position III, such that an even compression of the powder 12 is obtained.

Alternatively, the compression surfaces 20, 21 of the first 4 and second compression elements 5 can be elliptical (not shown), wherein the ellipse comprises a long axis and a short axis, wherein the long axis runs parallel to the central axis 2.

The brewing chamber 6 is connected to a drive mechanism 23 to drive the brewing chamber 6 along the curved trajectory.

Thereto, a rotatable shaft 24 can be arranged at the position of the central axis 2, wherein the shaft is part of the drive mechanism 23, wherein the shaft 24 is driven by a drive motor (not shown) to drive the brewing chamber 6 along the curved trajectory 3. The non-compression end of the second compression element 5 (the end that 'protrudes' through a corresponding hole in the generally closed end 17 of the tubular wall 7) may be connected to a bracket, plate or similar connection means, that in turn is arranged for rotating (freely) around the shaft 24.

Alternatively, or additionally, an outer circumference 25 of the tubular wall 7 of the brewing chamber 6 is provided with a rack-and-pinion drive mechanism 26 arranged to drive the tubular wall 7 along the curved trajectory 3 (as shown in figure 3).

As shown in figure 5, preferably the beverage outlet 15 is arranged in the second compression element 5. To prevent powder 12 from entering the beverage outlet 15, a sieve 31 or the like can be provided. Preferably, the beverage outlet 15 is provided with a pressure valve 27 that only opens when a predetermined water pressure in the brewing space 13 is exceeded. The beverage outlet 15 can be arranged away from the geometric center of the compression surface 21, i.e. more towards the central axis 2.

When the device 1 returns to the idle position I, the opening 11 of the open longitudinal end 16 preferably extends in a vertical direction and the compression surface 21 of the second compression element 5 is aligned with the opening 11 to eject a spent powder pill out of the opening 11.

Thus, the invention has been described by reference to the embodiment discussed above. It will be recognized that the embodiment is susceptible to various modifications and alternative forms well known to those of skill in the art without departing from the spirit and scope of the invention. Accordingly, although a specific embodiment has been described, this is an example only and not limiting upon the scope of the invention.

Reference numerals

- | | | |
|----|-----|---|
| | 1. | Beverage preparation device |
| | 2. | Central axis |
| 5 | 3. | Curved trajectory |
| | 4. | First compression element |
| | 5. | Second compression element |
| | 6. | Brewing chamber |
| | 7. | Tubular wall |
| 10 | 8. | Outer circumference of the first compression element |
| | 9. | Outer circumference of the second compression element |
| | 10. | Filling space |
| | 11. | Opening for receiving ingredient powder |
| | 12. | Ingredient powder |
| 15 | 13. | Brewing space |
| | 14. | Water inlet |
| | 15. | Beverage outlet |
| | 16. | Open end of tubular wall |
| | 17. | Closed end of tubular wall |
| 20 | 18. | Locking mechanism |
| | 19. | Circumferential space |
| | 20. | Compression surface of first compression element |
| | 21. | Compression surface of second compression element |
| | 22. | Perpendicular distance of compression plane from central axis |
| 25 | 23. | Drive mechanism |
| | 24. | Rotatable shaft |
| | 25. | Outer circumference of tubular wall |
| | 26. | Rack-and-pinion drive mechanism |
| | 27. | Pressure valve |
| 30 | 28. | Sealing ring |
| | 29. | Sealing ring |
| | 30. | Mounting plate |
| | 31. | Sieve |

32. Compression plane of first compression element

I = idle position

II = filling position

5 III = brewing position

Conclusies

1. Drankbereidingsinrichting (1), omvattend:
 - a) een centrale as (2) met een brouwvlak loodrecht op de centrale as, waarbij het
5 brouwvlak een gekromd traject (3) omvat, gekromd ten opzichte van de centrale as,
 - b) een eerste (4) en een tweede (5) compressie-element, ingericht voor beweging
ten opzichte van elkaar langs het gekromde traject, welke compressie-elementen zich
loodrecht op het gekromde traject uitstrekken,
 - c) een brouwkamer (6) ingericht voor beweging ten opzichte van de eerste en/of
10 tweede compressie-elementen langs het gekromde traject, waarbij de brouwkamer een
buisvormige wand (7) heeft die zich parallel aan het gekromde traject uitstrekt, waarbij
de buisvormige wand is ingericht om over een buitenomtrek (8, 9) van de eerste en/of
tweede compressie-elementen bewogen te worden, waarbij:
 - i. in een ruststand (I), de eerste en tweede compressie-elementen zich op
15 afstand van elkaar bevinden langs het gekromde traject,
 - ii. in een vulstand (II), de buisvormige wand is bewogen ten opzichte van
het eerste compressie-element langs het gekromde traject, zondanig dat een vulruimte
(10) is gevormd die begrensd is door de buisvormige wand en het tweede compressie-
element, waarbij de buisvormige wand een opening (11) omvat voor het ontvangen van
20 een poeder (12) voor het bereiden van de drank in de vulruimte,
 - iii. in een brouwstand (III), de eerste en tweede compressie-elementen naar
elkaar toe zijn bewogen langs het gekromd traject om het poeder samen te drukken, en
de buisvormige wand over de eerste en tweede compressie-elementen is bewogen,
zodanig dat de eerste en tweede compressie-elementen en de buisvormige wand een
25 brouwruimte (13) voor het met het poeder bereiden van de drank is omsloten,
 - d) een waterinlaat (14) ingericht voor het doen instromen van water in de
brouwruimte, en
 - e) een drankuitlaat (15) ingericht voor het doen uitstromen van drank vanuit de
brouwruimte.
- 30 2. Inrichting volgens conclusie 1, waarbij de centrale as zich uitstrekt in
horizontale richting.

3. Inrichting volgens conclusie 1, waarbij de centrale as zich uitstrekt in verticale richting.
4. Inrichting volgens een van de voorgaande conclusies, waarbij de opening wordt gevormd door een open langsuiteinde (16), wanneer bezien langs het gekromde traject, van de buisvormige wand.
5. Inrichting volgens een van de voorgaande conclusies, waarbij het eerste compressie-element statisch is.
6. Inrichting volgens een van de voorgaande conclusies, waarbij het tweede compressie-element meegesleept kan worden door een gesloten langsuiteinde (17) van de buisvormige wand van de brouwkamer.
7. Inrichting volgens conclusie 6, waarbij het tweede compressie-element is voorzien van een omkeerbaar vergrendelingsmechanisme (18), waarbij het omkeerbare vergrendelingsmechanisme is ingericht voor het vergrendelen van het tweede compressie-element in een vergrendelde toestand, zodat beweging daarvan langs het gekromde traject wordt voorkomen, en voor het ontgrendelen van het tweede compressie-element in een ontgrendelde toestand, om toe te staan dat het tweede compressie-element langs het gekromde traject wordt meegesleept door de brouwkamer.
8. Inrichting volgens een van de voorgaande conclusies, waarbij, wanneer afhankelijk van conclusies 2 en 4, in de vulstand, de opening van het open langsuiteinde zich uitstrekt in horizontale richting.
9. Inrichting volgens een van de voorgaande conclusies, waarbij, in de brouwstand, de waterinlaat is ingericht voor het injecteren van water in een omtreksruimte (19) tussen de buisvormige wand en de buitenomtrek van het eerste compressie-element, waarbij de omtreksruimte in vloeistofverbinding staat met de brouwruimte.

10. Inrichting volgens een van de voorgaande conclusies, waarbij een compressievlak omvattend een compressieoppervlak van het eerste en/of tweede compressie-element zich uitstrekt op een zodanige loodrechte afstand (22) van de centrale as, dat het compressieoppervlak van het eerste compressie-element en het
5 compressieoppervlak van het tweede compressie-element parallel zijn in de brouwstand, zodat een gelijkmatige compressie van het poeder wordt verkregen.
11. Inrichting volgens een van de voorgaande conclusies, waarbij de compressieoppervlakken van de eerste en tweede compressie-elementen elliptisch of
10 ovaal zijn, waarbij de ellips of ovaal een lange en korte as heeft, waarbij de lange as zich parallel aan de centrale as uitstrekt.
12. Inrichting volgens een van de voorgaande conclusies, waarbij de brouwkamer is verbonden met een aandrijfmechanisme (23) om de brouwkamer langs het gekromde
15 traject te drijven.
13. Inrichting volgens conclusie 12, waarbij een roteerbare as (24) is aangebracht op de positie van de centrale as, waarbij de as deel uitmaakt van het aandrijfmechanisme, waarbij de as wordt aangedreven door een aandrijfmotor om de
20 brouwkamer langs het gekromde traject te drijven.
14. Inrichting volgens conclusie 12, waarbij een buitenomtrek (25) van de buisvormige wand van de brouwkamer is voorzien van een tandheugelaandrijvingsmechanisme (26) ingericht om de buisvormige wand langs het
25 gekromde traject te drijven.
15. Inrichting volgens een van de voorgaande conclusies, waarbij de drankuitlaat is aangebracht in het tweede compressie-element.
- 30 16. Inrichting volgens conclusie 15, waarbij de drankuitlaat is voorzien van een drukventiel (27).

17. Inrichting volgens een van de voorgaande conclusies, waarbij, wanneer afhankelijk van conclusie 8, de opening van het open langsuiteinde zich uitstrekt in verticale richting, waarbij in de ruststand het compressieoppervlak van het tweede compressie-element is uitgelijnd met de opening.

Fig. 1

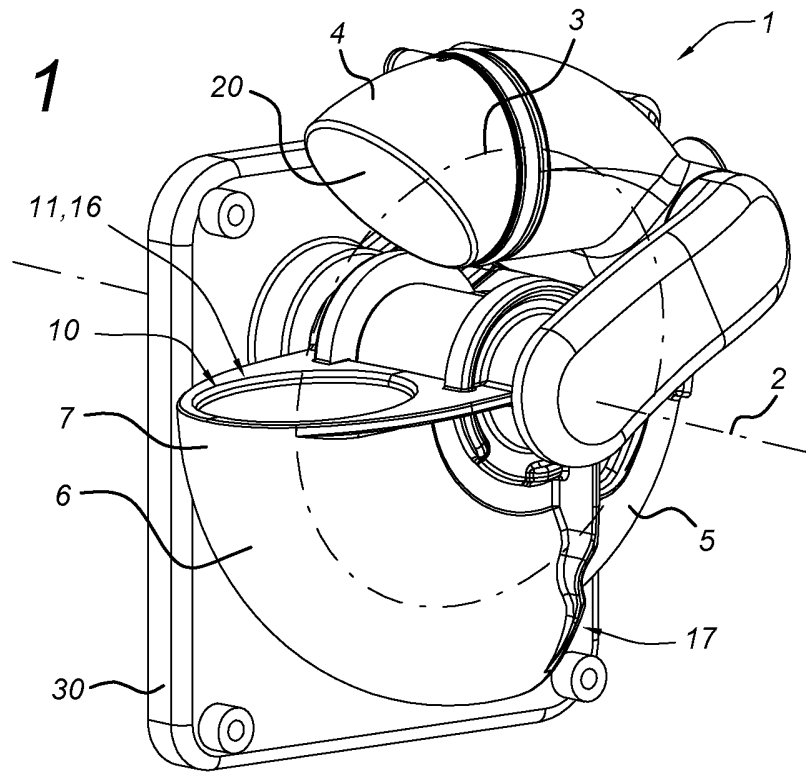


Fig. 2

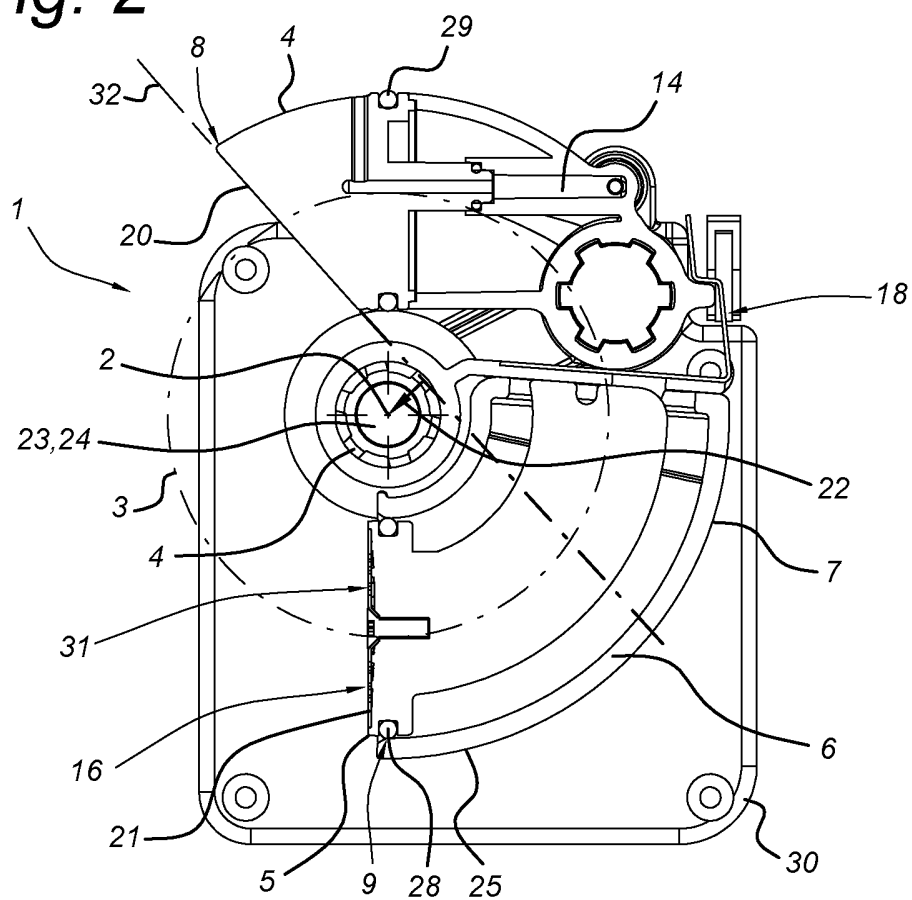


Fig. 3

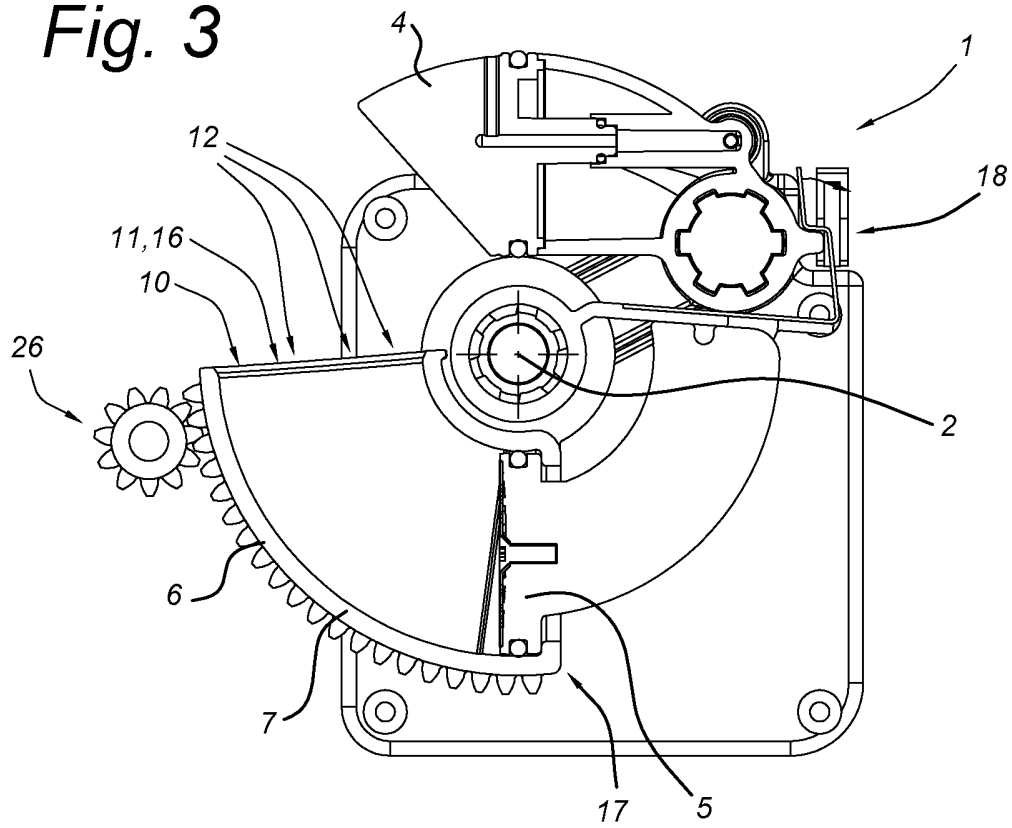


Fig. 4

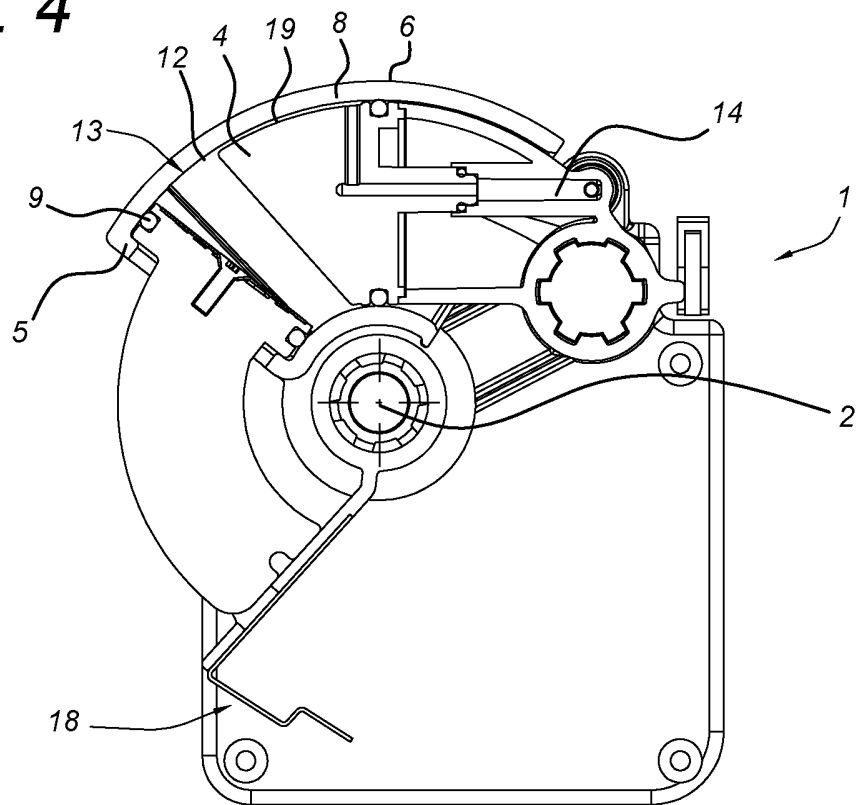
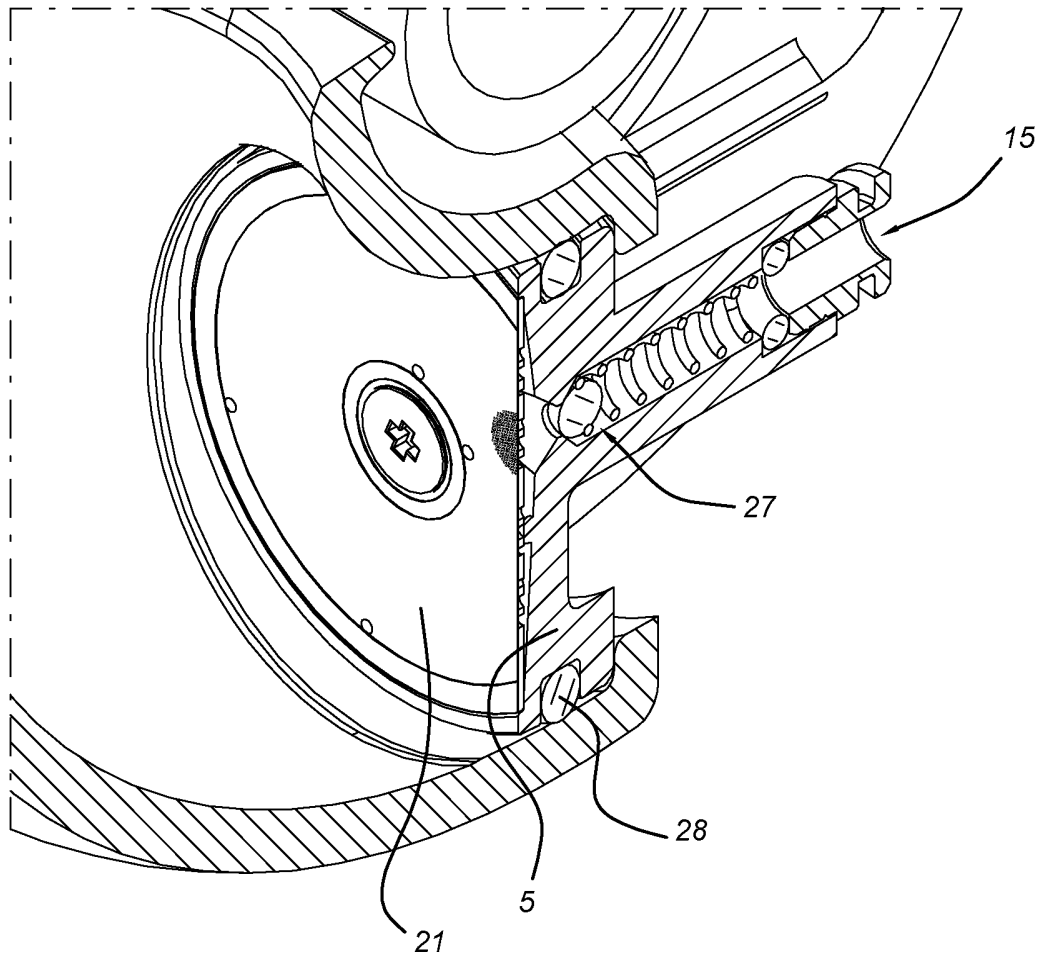


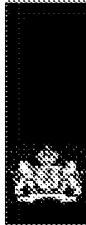
Fig. 5



Abstract

The invention relates to a beverage preparation device (1), comprising a central axis (2) with a brewing plane perpendicular to the central axis, wherein the brewing
5 plane comprises a curved trajectory (3), curved with respect to the central axis, a first (4) and second (5) compression element, arranged for movement relative to each other along the curved trajectory, extending perpendicular to the curved trajectory, a brewing chamber (6) arranged for movement relative to the first and second compression elements along the curved trajectory, the brewing chamber having a tubular wall (7)
10 extending parallel to the curved trajectory, wherein the tubular wall is arranged to be moved over an outer circumference (8, 9) of the first and/or second compression elements, a water inlet (14) arranged for discharging water into a brewing space, and a beverage outlet (15) arranged for discharging beverage from the brewing space.

15 [FIG. 2]



Rijksdienst voor Ondernemend
Nederland

OCTROOIAANVRAAG NR.
NO 139356
NL 2014557

ONDERZOEKSRAPPORT

BETREFFENDE HET RESULTAAT VAN HET ONDERZOEK NAAR DE STAND VAN DE TECHNIEK

RELEVANTE LITERATUUR			
Categorie	Literatuur met, voor zover nodig, aanduiding van specifiek van belang zijnde tekstgedeelten of figuren	Van belang voor conclusie nr.	Classificatie (IPC)
A	EP 0 937 432 A1 (SCHMED ARTHUR [CH]) 25 augustus 1999 (1999-08-25) * alinea's [0012] - [0029]; figuren *	1-17	INV. A47J31/36 A47J31/00
A	WO 2015/004613 A1 (LAVAZZA LUIGI SPA [IT]; TORINO POLITECNICO [IT]) 15 januari 2015 (2015-01-15) * bladzijden 5-23; figuren *	1-17	
A	EP 2 241 228 A1 (N&W GLOBAL VENDING SPA [IT]) 20 oktober 2010 (2010-10-20) * alinea's [0010] - [0049]; figuren *	1-17	
A	EP 2 832 270 A1 (RHEAVENDORS SERVICES S P A [IT]) 4 februari 2015 (2015-02-04) * alinea's [0031] - [0080]; figuren *	1-17	
			Onderzochte gebieden van de techniek
			A47J
Indien gewijzigde conclusies zijn ingediend, heeft dit rapport betrekking op de conclusies ingediend op:			
Plaats van onderzoek:		Datum waarop het onderzoek werd voltooid	Bevoegd ambtenaar
München		24 november 2015	De Terlizzi, Marino
CATEGORIE VAN DE VERMELDE LITERATUUR			
X: de conclusie wordt als niet nieuw of niet inventief beschouwd ten opzichte van deze literatuur Y: de conclusie wordt als niet inventief beschouwd ten opzichte van de combinatie van deze literatuur met andere geïsoleerde literatuur van dezelfde categorie, waarin de combinatie voor de vakman voor de hand liggend wordt gezien A: niet tot de categorie X of Y behorende literatuur die de stand van de techniek beschrijft C: niet-abstracte stand van de techniek P: tussen de voorgeschieden en de indieningsdatum gepubliceerde literatuur T: na de indieningsdatum of de voortgedatum gepubliceerde literatuur die niet bezwaarlijk is voor de octrooiaanvraag, maar wordt vermeld ter verheldering van de theorie of het principe dat ten grondslag ligt aan de uitvinding E: eerdere octrooiaanvragen, gepubliceerd op of na de indieningsdatum, waarin dezelfde uitvinding wordt beschreven D: in de octrooiaanvraag vermeld L: om andere redenen vermelde literatuur B: na van dezelfde octrooiaanvraag of overeenkomstige octrooiaanvraag			

**AANHANGSEL BEHORENDE BIJ HET RAPPORT BETREFFENDE
HET ONDERZOEK NAAR DE STAND VAN DE TECHNIEK,
UITGEVOERD IN DE OCTROOIAANVRAGE NR.**

NO 139356
NL 2014557

Het aanhangsel bevat een opgave van elders gepubliceerde octrooiaanvragen of octrooien (zogenaamde leden van dezelfde octroofamilie), die overeenkomen met octrooschriften genoemd in het rapport.

De opgave is samengesteld aan de hand van gegevens uit het computerbestand van het Europees Octrooibureau per

De juistheid en volledigheid van deze opgave wordt noch door het Europees Octrooibureau, noch door het Bureau voor de Industriële eigendom gegarandeerd; de gegevens worden verstrekt voor informatiedoeleinden.

24-11-2015

In het rapport genoemd octrooigecchrift		Datum van publicatie	Overeenkomst(e) geschrift(en)	Datum van publicatie
EP 0937432	A1	25-08-1999	AT 228796 T	15-12-2002
			CA 2260246 A1	26-07-1999
			CH 692443 A5	28-06-2002
			DE 59903611 D1	16-01-2003
			DK 0937432 T3	07-04-2003
			EP 0937432 A1	25-08-1999
			ES 2189374 T3	01-07-2003
			JP 3034857 B2	17-04-2000
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			PT 937432 E	30-04-2003
			US 6129006 A	10-10-2000
WO 2015004613	A1	15-01-2015	GEEN	
EP 2241228	A1	20-10-2010	AT 535176 T	15-12-2011
			CN 101926607 A	29-12-2010
			DK 2241228 T3	27-02-2012
			EP 2241228 A1	20-10-2010
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			JP 2010246931 A	04-11-2010
			US 2010319548 A1	23-12-2010
EP 2832270	A1	04-02-2015	EP 2832270 A1	04-02-2015
			TW 201511721 A	01-04-2015
			WO 2015015271 A1	05-02-2015

SCHRIFTELIJKE OPINIE

DOSSIER NUMMER NO139356	INDIENINGSDATUM 31.03.2015	VOORRANGSDATUM	AANVRAAGNUMMER NL2014557
CLASSIFICATIE INV. A47J31/36 A47J31/00			
AANVRAGER Bravilor Holding B.V.			

Deze schriftelijke opinie bevat een toelichting op de volgende onderdelen:

- ☒ Onderdeel I Basis van de schriftelijke opinie
- ☐ Onderdeel II Voorrang
- ☐ Onderdeel III Vaststelling nieuwheid, inventiviteit en industriële toepasbaarheid niet mogelijk
- ☐ Onderdeel IV De aanvraag heeft betrekking op meer dan één uitvinding
- ☒ Onderdeel V Gemotiveerde verklaring ten aanzien van nieuwheid, inventiviteit en industriële toepasbaarheid
- ☐ Onderdeel VI Andere geciteerde documenten
- ☐ Onderdeel VII Overige gebreken
- ☐ Onderdeel VIII Overige opmerkingen

	DE BEVOEGDE AMBTENAAR De Terlizzi, Marino
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SCHRIFTELIJKE OPINIE

Aanvraag nr.
NL2014557

Onderdeel I Basis van de Schriftelijke Opinie

1. Deze schriftelijke opinie is opgesteld op basis van de meest recente conclusies ingediend voor aanvang van het onderzoek.
2. Met betrekking tot **nucleotide en/of aminozuur sequenties** die genoemd worden in de aanvraag en relevant zijn voor de uitvinding zoals beschreven in de conclusies, is dit onderzoek gedaan op basis van:
 - a. type materiaal:
 - ☐ sequentie opsomming
 - ☐ tabel met betrekking tot de sequentie lijst
 - b. vorm van het materiaal:
 - ☐ op papier
 - ☐ in elektronische vorm
 - c. moment van indiening/aanlevering:
 - ☐ opgenomen in de aanvraag zoals ingediend
 - ☐ samen met de aanvraag elektronisch ingediend
 - ☐ later aangeleverd voor het onderzoek
3. ☐ In geval er meer dan één versie of kopie van een sequentie opsomming of tabel met betrekking op een sequentie is ingediend of aangeleverd, zijn de benodigde verklaringen ingediend dat de informatie in de latere of additionele kopieën identiek is aan de aanvraag zoals ingediend of niet meer informatie bevatten dan de aanvraag zoals oorspronkelijk werd ingediend.
4. Overige opmerkingen:

SCHRIFTELIJKE OPINIE

Aanvraag nr.
NL2014557

Onderdeel V Gemotiveerde verklaring ten aanzien van nieuwheid, inventiviteit en industriële toepasbaarheid

1. Verklaring

Nieuwheid	Ja: Conclusies 1-17
	Nee: Conclusies
Inventiviteit	Ja: Conclusies 1-17
	Nee: Conclusies
Industriële toepasbaarheid	Ja: Conclusies 1-17
	Nee: Conclusies

2. Citaties en toelichting:

Zie aparte bladzijde

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

- D1 EP 0 937 432 A1 (SCHMED ARTHUR [CH]) 25 augustus 1999
 (1999-08-25)
- D2 WO 2015/004613 A1 (LAVAZZA LUIGI SPA [IT]; TORINO
 POLITECNICO [IT]) 15 januari 2015 (2015-01-15)
- D3 EP 2 241 228 A1 (N&W GLOBAL VENDING SPA [IT]) 20 oktober 2010
 (2010-10-20)
- D4 EP 2 832 270 A1 (RHEAVENDORS SERVICES S P A [IT]) 4 februari
 2015 (2015-02-04)

- 1 The document D1 is regarded as being the prior art closest to the subject-matter of claim 1, and discloses (the references applying to this document):
a beverage preparation device is provided, comprising;
a) a central axis with a brewing plane (in the plane of the figures) perpendicular to the central axis, wherein the brewing plane comprises a straight trajectory,
b) a first (3) and second (5) compression element, arranged for movement relative to each other along the straight trajectory, extending perpendicular to the trajectory,
c) a brewing chamber (6) arranged for movement relative to the first (3) and second (5) compression elements along the straight trajectory
- 2 The subject-matter of claim 1 therefore differs from this known device in that the first and second compression elements, as well as the brewing chamber, are arranged for movement along a curved trajectory, and further the brewing chamber has a tubular wall extending parallel to the curved trajectory, and is therefore new.
- 3 The problem to be solved by the present invention may be regarded as to provide a beverage preparation device with a compact arrangement, which takes up less space.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step for the following reasons: although an arrangement with relatively movable compression elements and brewing chamber is known in the prior art, these elements are known to typically move along a straight line, with the brewing chamber also extending parallel to a straight direction. The provision of the compression elements and the brewing chamber arranged for movement along a curved trajectory, and further of the brewing chamber being formed of a tubular wall extending parallel to the curved trajectory, cannot be derived in an obvious manner from the prior art, and the skilled person faced with the problem of improving the compactness of the device of D1, would thus not arrive at the subject-matter of claim 1 in an obvious manner.

- 4 Claims 2-17 are dependent on claim 1 and as such also meet the requirements of novelty and inventive step.