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(54) **A BEVERAGE CONTAINER HANDLING UNIT**

(57) The present invention relates to a beverage container handling unit for a refrigerator of a beverage dispensing system, the refrigerator having a space defined by side walls, an end wall, a top face, a bottom face and a door, wherein the beverage container handling unit comprises a base part having a first face and a second face, the base part being movable between a first position and a second position, the first position being within the refrigerator and the second position being partly outside the refrigerator, and a supporting part comprising at least one longitudinal element having a first end and a second end, and a leg element being substantially perpendicular to the longitudinal element in a supporting position of the supporting part, the supporting part being configured to support the base part when it is being moved from the first position along the longitudinal element to the second position. Further, the present invention relates to a refrigerator for a beverage dispensing system according to the present invention and to a beverage dispensing system comprising a refrigerator and a beverage container handling unit according to the present invention.

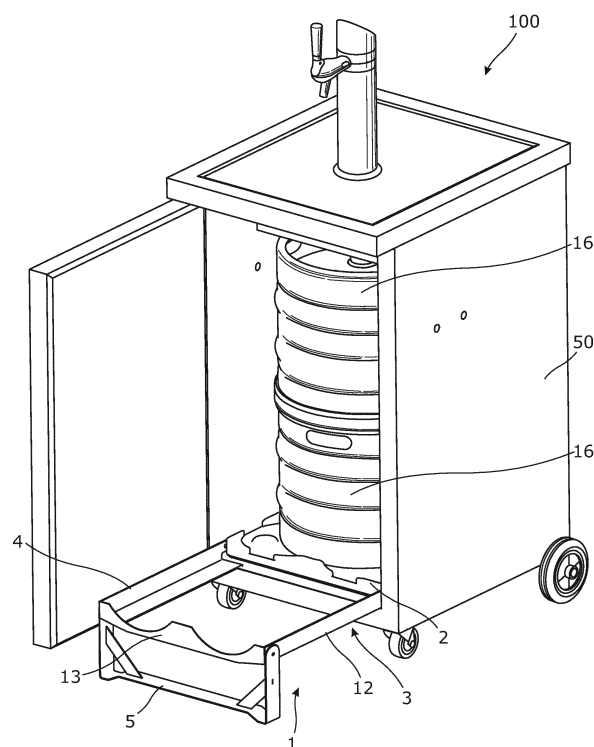


Fig. 7

Description

Field of the invention

[0001] The present invention relates to a beverage container handling unit for a refrigerator of a beverage dispensing system. Further, the present invention relates to a refrigerator for a beverage dispensing system according to the present invention and to a beverage dispensing system comprising a refrigerator and a beverage container handling unit according to the present invention.

Background art

[0002] Beverage containers are made of metal and when filled with beverage, they are heavy and thereby difficult to handle for bar staff. Especially, it is difficult to insert one or more filled beverage containers into refrigerators for cooling them before dispensing, since refrigerators often have limited heights.

Summary of the invention

[0003] It is an object of the present invention to wholly or partly overcome the above disadvantages and drawbacks of the prior art. More specifically, it is an object to provide an improved way of handling heavy equipment, such as beverage containers, when they are being inserted into refrigerators and removed therefrom.

[0004] The above objects, together with numerous other objects, advantages and features, which will become evident from the below description, are accomplished by a solution in accordance with the present invention by a beverage container handling unit for a refrigerator of a beverage dispensing system, the refrigerator having a space defined by side walls, an end wall, a top face, a bottom face and a door, wherein the beverage container handling unit comprises

- a base part having a first face and a second face, the base part being movable between a first position and a second position, the first position being within the refrigerator and the second position being partly outside the refrigerator, and
- a supporting part comprising at least one longitudinal element having a first end and a second end, and a leg element being substantially perpendicular to the longitudinal element in a supporting position of the supporting part, the supporting part being configured to support the base part when it is being moved from the first position along the longitudinal element to the second position.

[0005] The first face of the base part may be configured to support one or more beverage containers, and the second face may be configured to be moved along the longitudinal element.

[0006] Moreover, the second face may comprise wheels.

[0007] Further, the second face may be configured to slide on the longitudinal element.

[0008] Also, the first face may comprise guiding elements for assisting in positioning the one or more beverage containers on the first face of the base part.

[0009] Additionally, the supporting part may be made of metal.

[0010] The supporting part may comprise a first longitudinal element and a second longitudinal element, the first and second longitudinal elements extending in parallel and being connected at the first end to each other by a transverse element, thereby defining a frame structure.

[0011] Moreover, the longitudinal elements may be L-profiles.

[0012] Furthermore, supporting part may comprise a first turning axis at the second end, so that the supporting part can pivot in relation to the base part in a parking position of the supporting part.

[0013] The longitudinal element(s) and the leg element may be connected via a second turning axis arranged at the first end, so that the leg element can pivot in relation to the longitudinal element(s) in a parking position of the supporting part.

[0014] Also, the supporting part may be movably arranged in relation to the base part.

[0015] Further, a handle may be arranged in connection with the supporting part for facilitating movement of the supporting part.

[0016] In addition, a first locking mechanism may be arranged in connection with the leg element, the first locking mechanism being configured to maintain the leg element in locked position in relation to the longitudinal element(s) when the supporting part is in the supporting position.

[0017] A second locking mechanism may be arranged at the second end of the longitudinal element(s), the second locking element being configured to maintain the supporting part in locked position when the supporting element is in a parking position.

[0018] Moreover, the supporting part may be configured to be within the refrigerator in a parking position.

[0019] Furthermore, the supporting part may be configured to be outside the refrigerator in the parking position.

[0020] The present invention also relates to a refrigerator for a beverage dispensing system, comprising a space defined by side walls, an end wall, a top face, a bottom face and a door, and a cooling device for cooling the space to a predetermined temperature, the refrigerator further comprising a beverage container handling unit according to any of the preceding claims.

[0021] Further, the base part may be configured to be moved on the bottom face when being within the space.

[0022] Additionally, the supporting part may be aligned with the bottom face, so that the base part can be moved

from the bottom face to the supporting part, and vice versa.

[0023] Furthermore, the present invention relates to a beverage dispensing system comprising a refrigerator and a beverage container handling unit as described above, the beverage dispensing system further comprising one or more beverage containers having extractor tubes, and a gas source connected to the beverage container via a dispense head, the dispense head being mounted on the extractor tube of the beverage container, a dispensing line extending from the dispense head to a tapping head, from which beverage can be tapped.

Brief description of the drawings

[0024] The invention and its many advantages will be described in more detail below with reference to the accompanying schematic drawings, which for the purpose of illustration show some non-limiting embodiments and in which

Figs. 1-2 show a beverage container handling unit in a side view and top view, respectively,

Fig. 3 shows a base part of the beverage container handling unit,

Fig. 4 shows a refrigerator,

Fig. 5 shows a beverage dispensing system,

Figs. 6-9 show a sequence of the function of the beverage container handling unit in the beverage dispensing system of Fig. 5, and

Fig. 10 shows another embodiment of the supporting part.

[0025] All the figures are highly schematic and not necessarily to scale, and they show only those parts which are necessary in order to elucidate the invention, other parts being omitted or merely suggested.

Detailed description of the invention

[0026] Fig. 1 shows a beverage container handling unit 1 configured to be mounted in a refrigerator of a beverage dispensing system. The beverage container handling unit 1 comprises a base part 2 having a first face 6 and a second face 7, the base part 2 being movable between a first position and a second position, the first position being within the refrigerator and the second position being partly outside the refrigerator, which will be described further below.

[0027] The beverage container handling unit 1 further comprises a supporting part 3 having at least one longitudinal element 4 with a first end 25 and a second end 26, and a leg element 5 being substantially perpendicular

to the longitudinal element 4 in a supporting position of the supporting part 3. Thus, the supporting part 3 is configured to support the base part 2 when the base part 2 is being moved from the first position, i.e. within the refrigerator, along the longitudinal element to the second position, i.e. partly outside the refrigerator.

[0028] Hereby a solution is obtained which facilitates the handling of the heavy beverage containers in a more ergonomic manner when the beverage containers are to be inserted into the refrigerator for cooling and/or dispensing, and when they are to be removed from the refrigerator.

[0029] As mentioned above, the first face 6 of the base part 2 is configured to support one or more beverage containers (not shown in Figs. 1-2), and the second face 7 is configured to be moved along the longitudinal element 4. In the embodiment shown in Fig. 1, the second face 7 comprises wheels 11 which assist in moving the base part 2 in relation to a bottom face of a refrigerator and the longitudinal element 4.

[0030] In addition, the supporting part 3 comprises a first turning axis 10 at the second end 26, so that the supporting part 3 can pivot in relation to the base part 2 in a parking position of the supporting part 3. The parking position of the supporting part 3 is when the supporting part 3 is not in use and ready to receive and support the base part 2.

[0031] The longitudinal element 4 and the leg element 5 are connected via a second turning axis 9 arranged at the first end 25, so that the leg element 5 can pivot in relation to the longitudinal element 4 in a parking position of the supporting part 3. Thus, the supporting part 3 is movably arranged in relation to the base part 2 when the base part 2 is in the first position within the refrigerator.

[0032] Moreover, a handle 8 is arranged in connection with the supporting part 3 for facilitating movement of the supporting part 3.

[0033] Since the beverage containers to be handled are heavy, it is expedient that the supporting part is made of rigid material, such as metal.

[0034] In Fig. 2, the beverage container handling unit 1 is shown in a top view. The supporting part 3 comprises a first longitudinal element 4 and a second longitudinal element 12, the first and second longitudinal elements 4, 12 extending in parallel and being connected at the first end 25 to each other by a transverse element 13, thereby defining a frame structure. In a preferred embodiment, the longitudinal elements 4, 12 are L-profiles. The transverse element 13 may also be an L-profile. The base part 2 may then be moved onto the L-profiles and be guided along these.

[0035] The beverage container handling unit 1 may advantageously be retro-fitted into existing refrigerators for improving the ergonomic handling of the beverage containers.

[0036] In Fig. 3, an embodiment of base part 2 is shown. The first face 6 comprises guiding elements 14 for assisting in positioning the one or more beverage con-

ainers on the first face 6 of the base part 2. The guiding elements 14 of the base part 2 in Fig. 3 are configured to either position four 20-litre beverage containers or two 30-litre beverage containers. The two beverage containers are intended to be stacked on top of each other, the four 20-litre beverage containers being placed side by side in a square configuration.

[0037] In Fig. 4, a refrigerator 50 is shown having a door 51 which opens into the cooling space inside the refrigerator 50. The refrigerator 50 has wheels 52 making the refrigerator 50 mobile. The refrigerator 50 may be a stand-alone refrigerator and be configured to cool, inter alia, beverage containers before they are being connected with a beverage dispensing system. The refrigerator 50 may also be placed in a bar, for instance under a bar counter.

[0038] In Fig. 5, a beverage dispensing system 100 is shown. The beverage dispensing system 100 shown in Figs. 5-9 is a stand-alone system. However, the present invention may also be used in connection with dispensing systems which are stationary installed in bars and restaurants.

[0039] The beverage dispensing system 100 comprises the refrigerator 50 with wheels 52. The refrigerator 50 is adapted to house one or more beverage container(s) to be dispensed from. The refrigerator 50 is provided with a cooling device for cooling the beverage to a predetermined temperature and may further be provided with circulating means for circulating the cool air in the refrigerator 50. The refrigerator 50 may also comprise a gas source. The gas source may be connected to a source pressure regulator and may be connected via a gas line to a pressure regulator. The pressure regulator may then be connected to a dispense head, which is coupled to an extractor tube of the beverage container. A dispensing line may extend from the beverage container up through a font or tower 20 arranged on top of the refrigerator 50 to the tapping head 21. The tower 20 extends upwards from an upper face 22 of the refrigerator 50. The tapping head 21 furthermore comprises a tapping handle. At the end of the dispensing line, a dispensing valve is arranged which may be opened and closed by the tapping handle.

[0040] The dispensing line may be made of a non-rigid material to facilitate handling and guiding. The dispensing line may comprise a valve at the outlet end, which valve is adapted to be opened and closed by the tapping handle when the dispensing line and valve are positioned in the tapping head. Instead of a valve, the dispensing valve may comprise a section made of a flexible material, such as rubber or silicone. The section is positioned opposite a pinch device arranged in the second part in connection with the tapping handle. The pinch device is adapted to pinch the section of the dispensing line and thereby close off the dispensing line.

[0041] In Fig. 6, the door 51 is opened, providing access to the cooling space 15 inside the refrigerator 50. Inside the cooling space 15, the beverage container handling unit 1 is shown. The cooling space 15 is inter alia

defined by side walls 17 and bottom face 18. Further, inside the cooling space 15, two beverage containers 16 are stacked on top of each other on the base part 2. In Fig. 6, the base part 2 is within the refrigerator 50 in the first position. In front of the beverage containers 16, the supporting part 3 is shown in the parked position. The first and second longitudinal elements 4, 12 are moved to a vertical position by pivoting them around the turning axis 10. The longitudinal elements 4, 12 are connected by the transverse element 13. In addition, the leg element 5 extends from the longitudinal elements 4, 12 in an upwards direction, whereby the supporting part 3 occupies as little space as possible.

[0042] By having the supporting part 3 in front of the beverage containers 16 in its parked position, it is obtained that the operator is forced to use the beverage container handling unit 1 when he or she is inserting or removing beverage containers from the refrigerator 50. The operator will consequently experience more ergonomic working positions than when using the prior art solutions.

[0043] Moreover a second locking mechanism may be arranged at the second end of the longitudinal element(s) 4, 12, the second locking element being configured to maintain the supporting part 3 in locked position when the supporting part 3 is in a parking position as shown in Fig. 7.

[0044] In Fig. 7, the supporting part 3 of the beverage container handling unit 1 has been moved from the parking position to the supporting position. The first and second longitudinal elements 4, 12 are now in a horizontal extension and are, in the second end, supported by the refrigerator and, in the first end, by the leg element 5. The leg element 5 is supported by the floor. The longitudinal elements 4, 12 are then aligned with the bottom face of the refrigerator 50, so that the base part 2 with the beverage containers 16 may be moved from the inside of the refrigerator 50 out on the supporting part 3 as shown in Fig. 8.

[0045] In Fig. 8, the base part 2 is moved out in the second position in which it is outside the refrigerator 50 and fully supported by the supporting part. The beverage containers may then easily be removed from the base part 2 as shown in Fig. 9.

[0046] In addition, a first locking mechanism may be arranged in connection with the leg element 5, the first locking mechanism being configured to maintain the leg element 5 in locked position in relation to the longitudinal elements 12 when the supporting part is in the supporting position as shown in Fig. 8.

[0047] In Fig. 9, the beverage dispensing system 100 is ready to be loaded with new beverage containers by the beverage containers being positioned on the base part 2 before being moved into the cooling space 15 by moving the base part 2 along the longitudinal elements 12 onto the bottom face 18 of the refrigerator 50.

[0048] In another embodiment, the supporting part may be configured to be outside the refrigerator in the

parking position. For instance, as shown in Fig. 10, rails 40 may be arranged under the refrigerator. The rails 40 have a groove 41 extending along the rails. The turning axis 10 may have a pin configured to be led in the groove when the supporting part 3 is being placed in the supporting position as shown in Fig. 10.

[0049] Although the invention has been described in the above in connection with preferred embodiments of the invention, it will be evident for a person skilled in the art that several modifications are conceivable without departing from the invention as defined by the following claims.

Claims

1. A beverage container handling unit for a refrigerator of a beverage dispensing system, the refrigerator having a space defined by side walls, an end wall, a top face, a bottom face and a door, wherein the beverage container handling unit comprises
 - a base part having a first face and a second face, the base part being movable between a first position and a second position, the first position being within the refrigerator and the second position being partly outside the refrigerator, and
 - a supporting part comprising at least one longitudinal element having a first end and a second end, and a leg element being substantially perpendicular to the longitudinal element in a supporting position of the supporting part, the supporting part being configured to support the base part when it is being moved from the first position along the longitudinal element to the second position.
2. A beverage container handling unit according to claim 1, wherein the first face of the base part is configured to support one or more beverage containers, and the second face is configured to be moved along the longitudinal element.
3. A beverage container handling unit according to claim 2, wherein the first face comprises guiding elements for assisting in positioning the one or more beverage containers on the first face of the base part.
4. A beverage container handling unit according to any of the claims 1-3, wherein the supporting part comprises a first longitudinal element and a second longitudinal element, the first and second longitudinal elements extending in parallel and being connected at the first end to each other by a transverse element, thereby defining a frame structure.
5. A beverage container handling unit according to any of the claims 1-4, wherein supporting part comprises a first turning axis at the second end, so that the supporting part can pivot in relation to the base part in a parking position of the supporting part.
6. A beverage container handling unit according to any of the claims 1-5, wherein the longitudinal element(s) and the leg element are connected via a second turning axis arranged at the first end, so that the leg element can pivot in relation to the longitudinal element(s) in a parking position of the supporting part.
7. A beverage container handling unit according to any of the claims 1-6, wherein the supporting part is movably arranged in relation to the base part.
8. A beverage container handling unit according to any of the claims 1-7, wherein a handle is arranged in connection with the supporting part for facilitating movement of the supporting part.
9. A beverage container handling unit according to any of the claims 1-8, wherein a first locking mechanism is arranged in connection with the leg element, the first locking mechanism being configured to maintain the leg element in locked position in relation to the longitudinal element(s) when the supporting part is in the supporting position.
10. A beverage container handling unit according to any of the claims 1-9, wherein a second locking mechanism is arranged at the second end of the longitudinal element(s), the second locking element being configured to maintain the supporting part in locked position when the supporting element is in a parking position.
11. A beverage container handling unit according to any of the claims 1-10, wherein the supporting part is configured to be within the refrigerator in a parking position.
12. A refrigerator for a beverage dispensing system, comprising a space defined by side walls, an end wall, a top face, a bottom face and a door, and a cooling device for cooling the space to a predetermined temperature, the refrigerator further comprising a beverage container handling unit according to any of the preceding claims.
13. A refrigerator according to claim 12, wherein the base part is configured to be moved on the bottom face when being within the space.
14. A refrigerator according to any of the claims 12-13, wherein the supporting part is aligned with the bottom face, so that the base part can be moved from

the bottom face to the supporting part, and vice versa.

15. A beverage dispensing system comprising a refrigerator according to any of the claims 12-14 and a beverage container handling unit according to any of the claims 1-11, the beverage dispensing system further comprising one or more beverage containers having extractor tubes, and a gas source connected to the beverage container via a dispense head, the dispense head being mounted on the extractor tube of the beverage container, a dispensing line extending from the dispense head to a tapping head from which beverage can be tapped.

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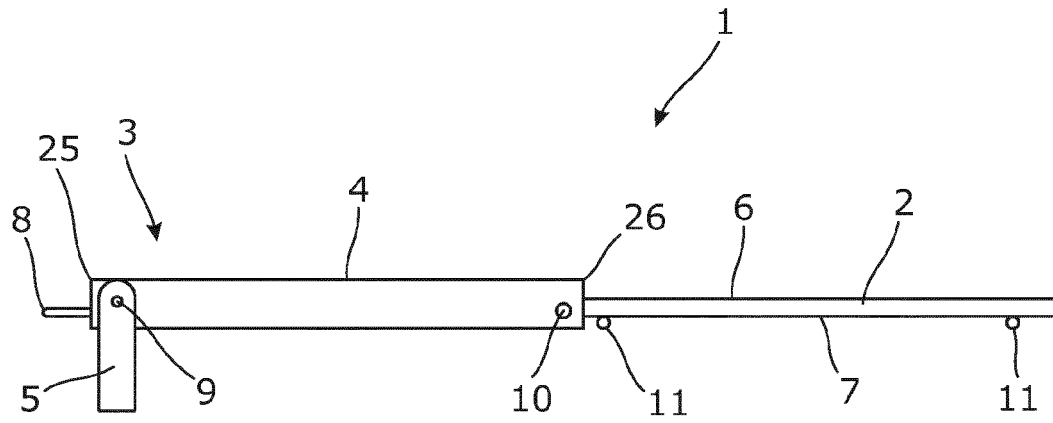


Fig. 1

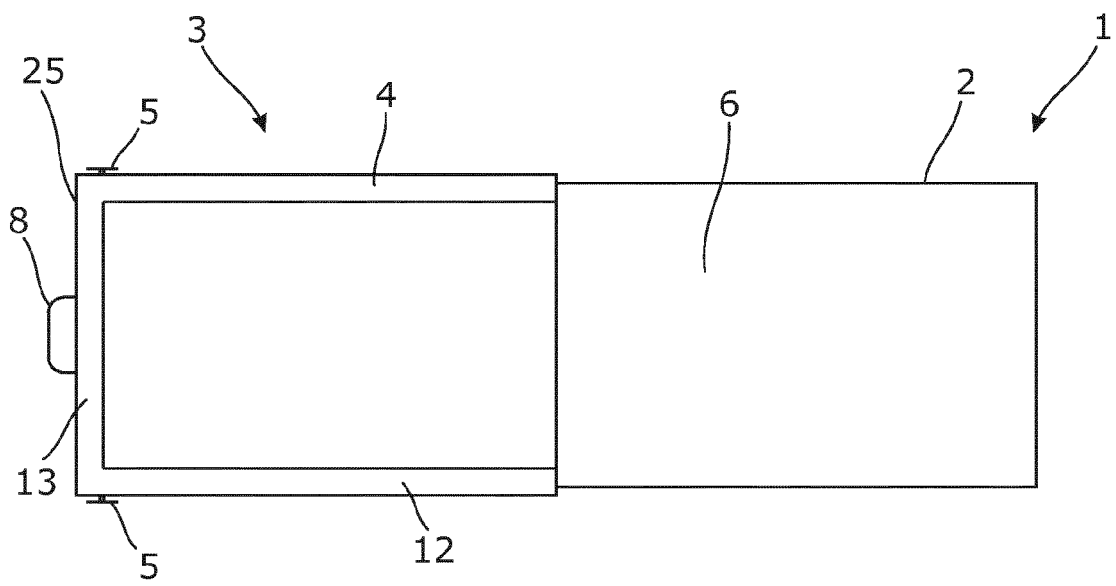


Fig. 2

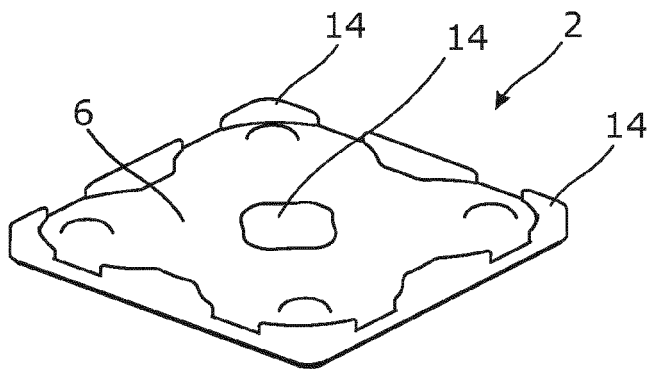


Fig. 3

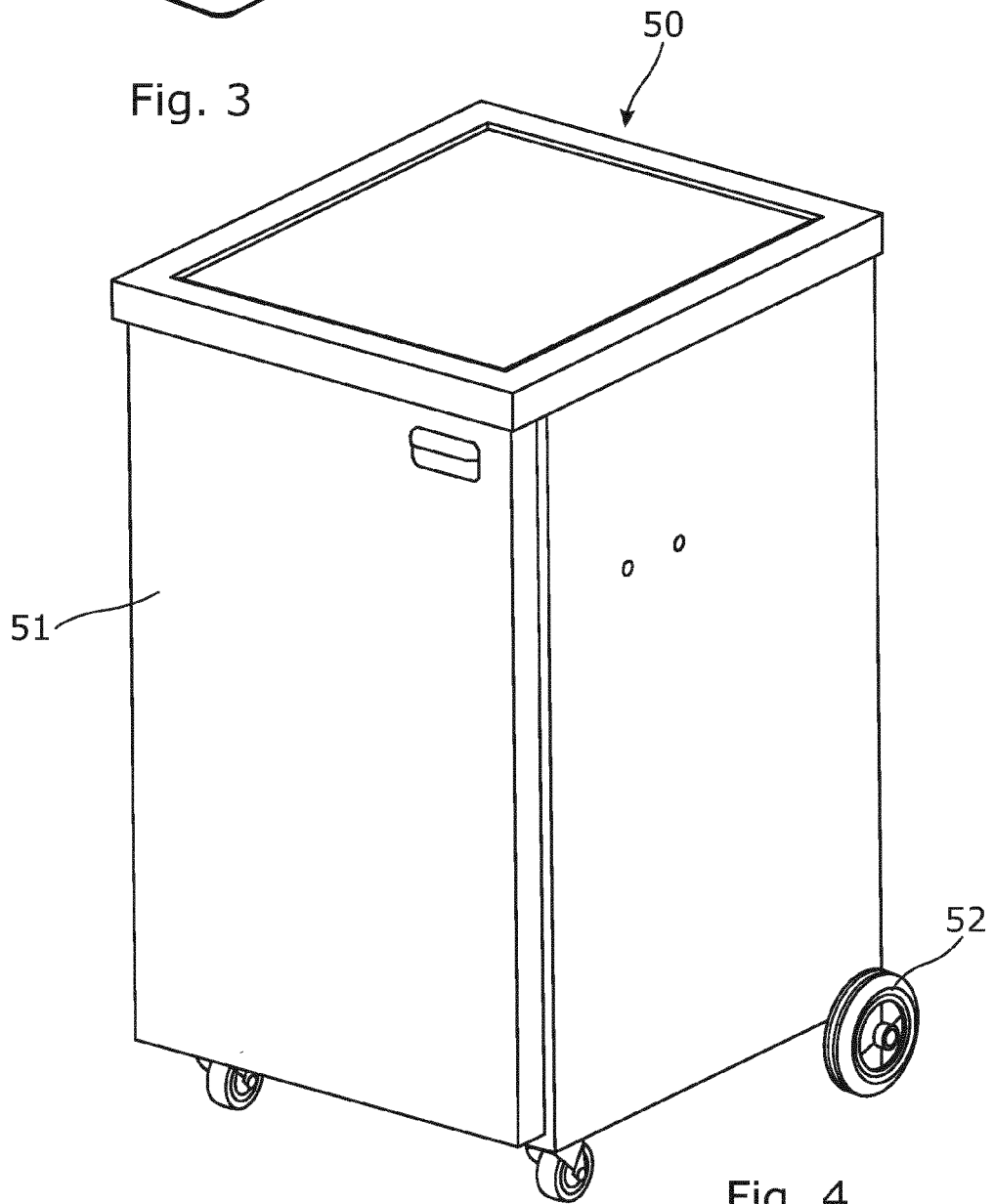


Fig. 4

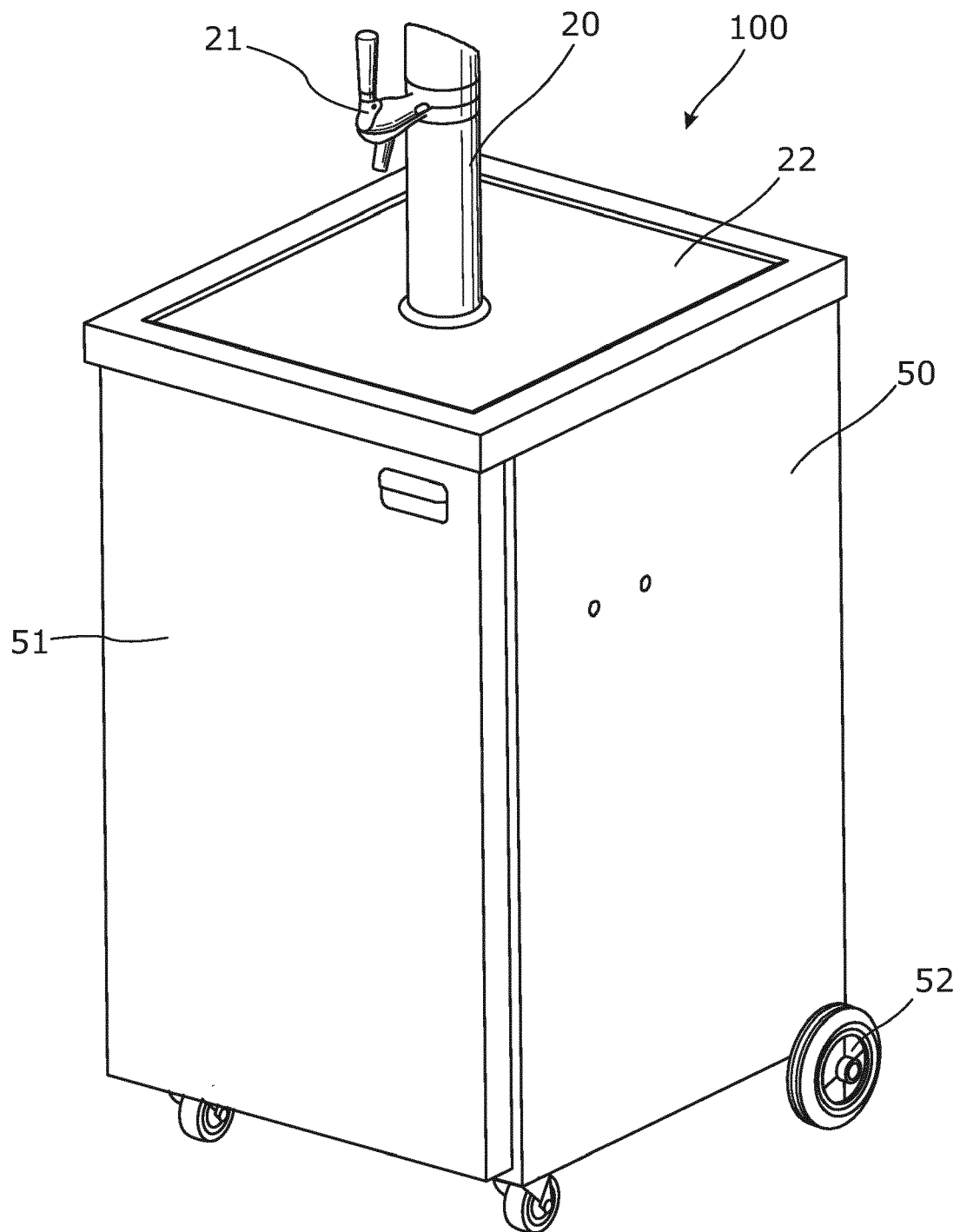


Fig. 5

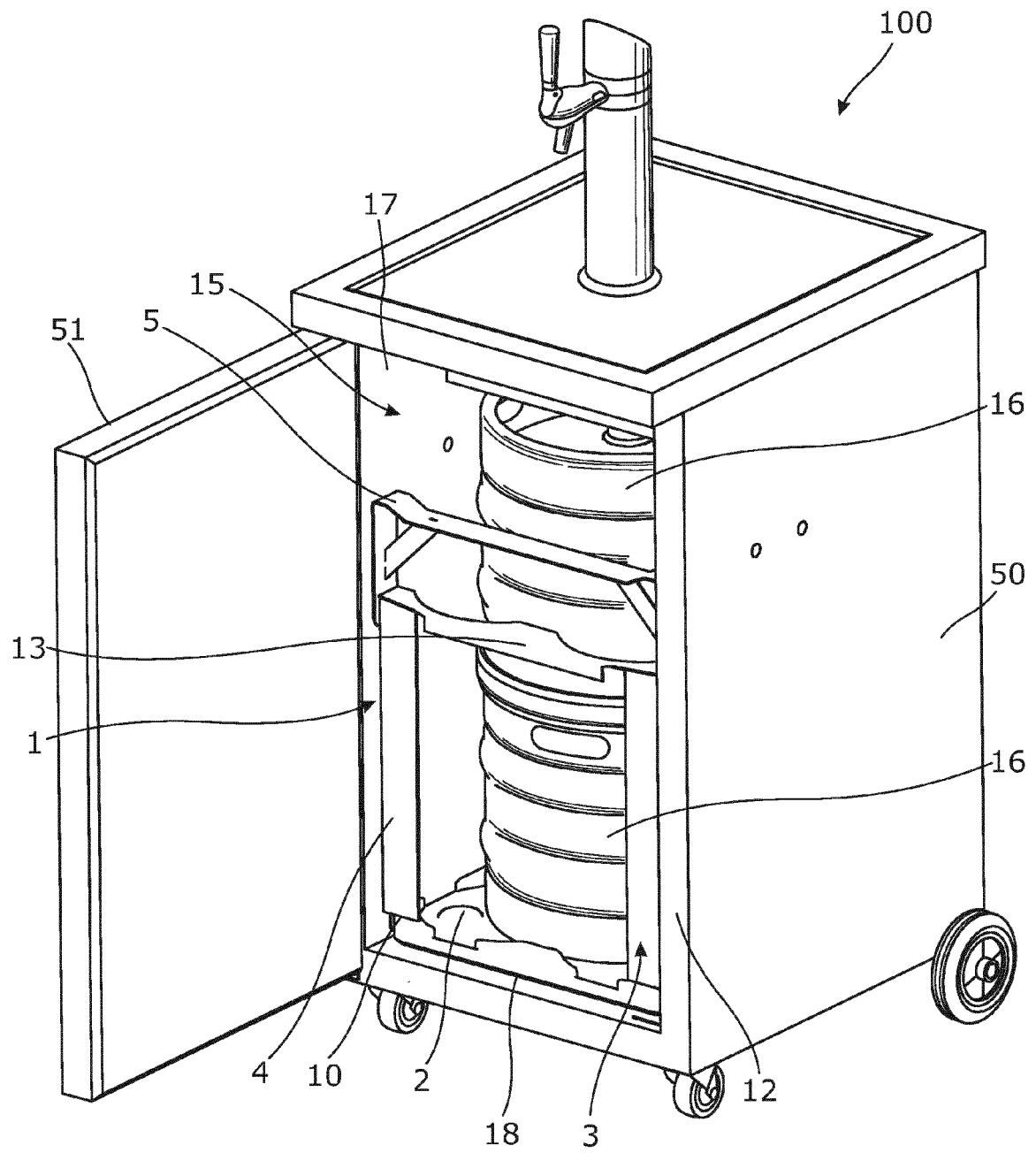


Fig. 6

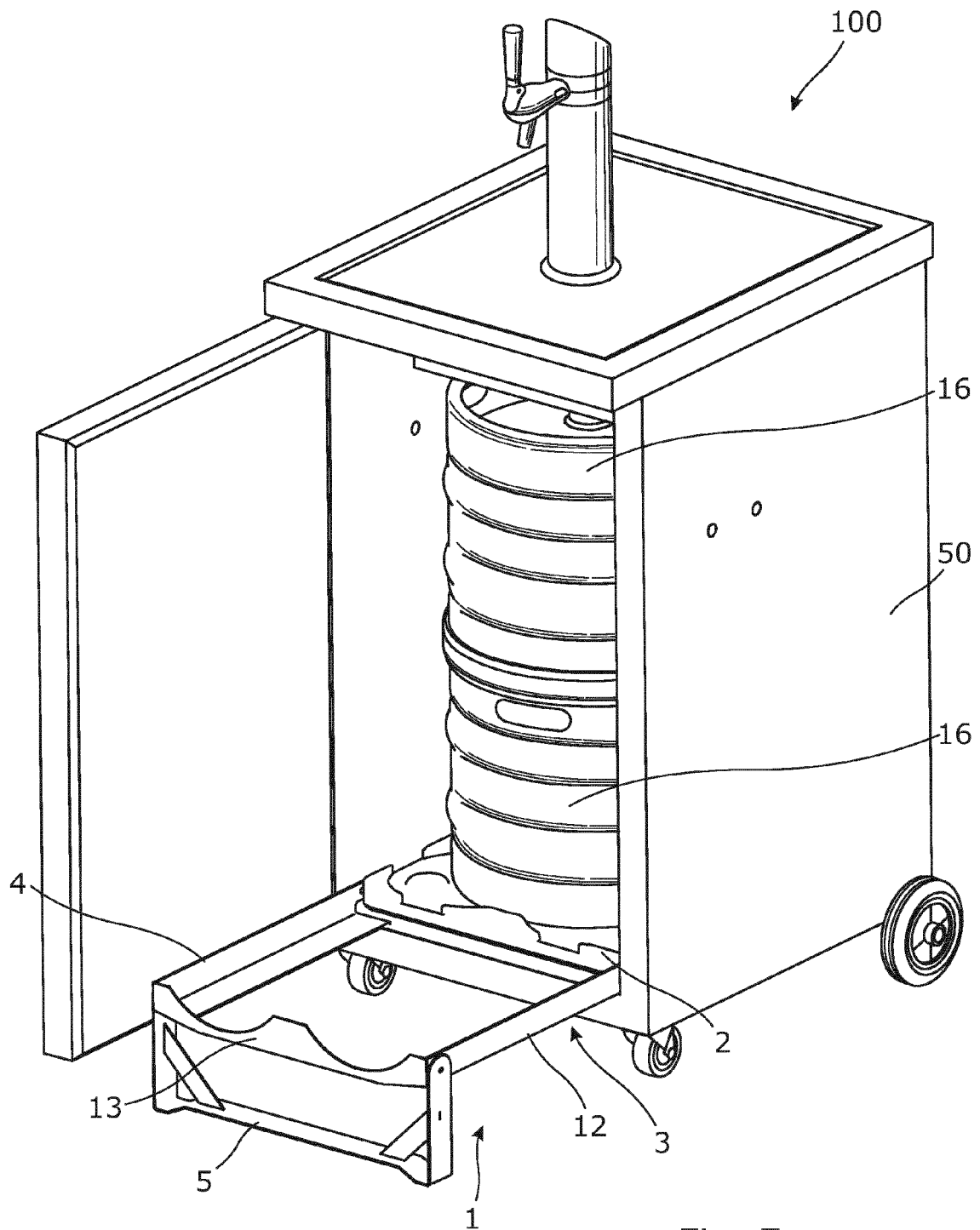


Fig. 7

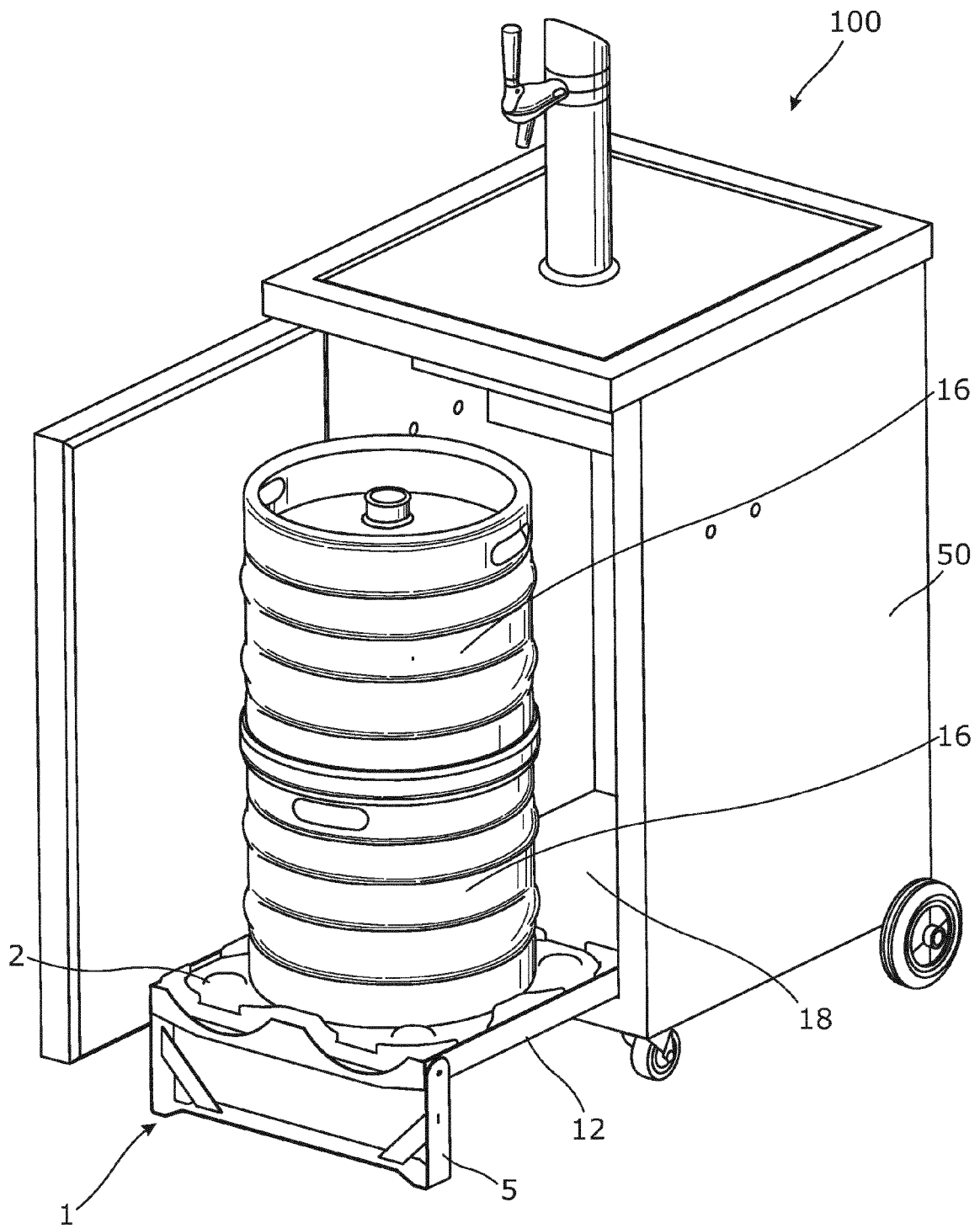
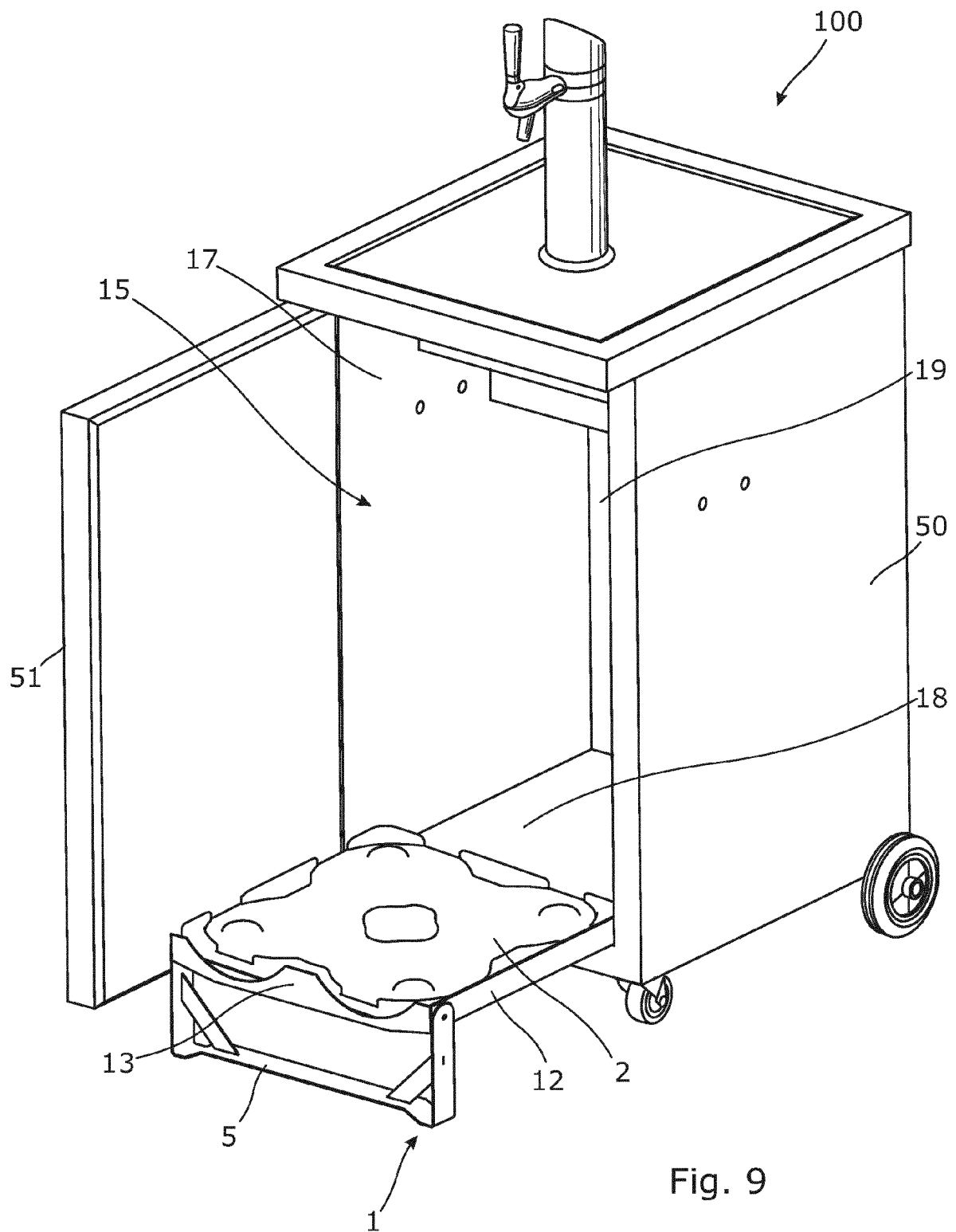


Fig. 8



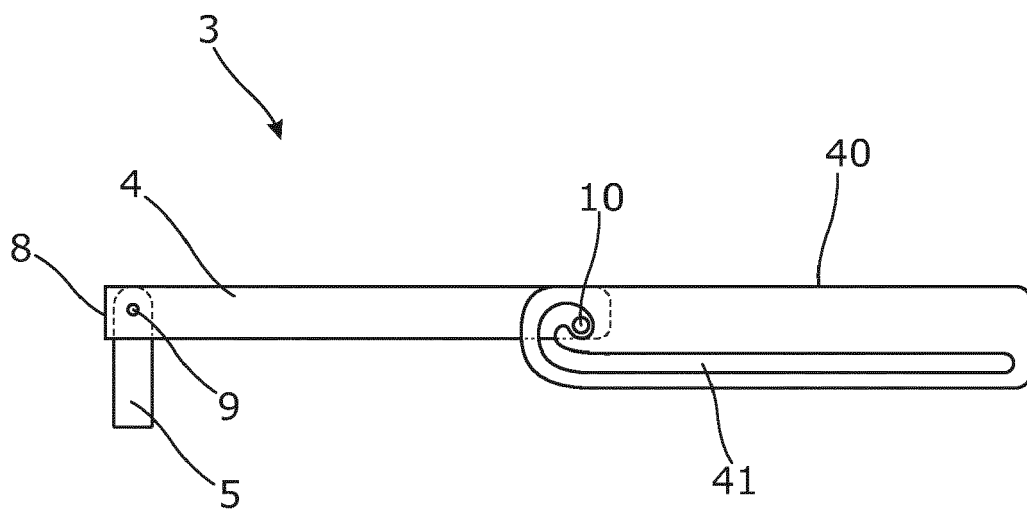


Fig. 10



EUROPEAN SEARCH REPORT

 Application Number
 EP 15 19 3606

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 20 2013 007547 U1 (FISCHER HANS JUERGEN [DE]) 19 September 2013 (2013-09-19) * paragraphs [0001], [0017], [0022], [0024]; figures 1,2 *	1-4,7, 11-15	INV. B67D1/08 B67D1/06
X	US 2 961 283 A (HENNION JOSEPH B) 22 November 1960 (1960-11-22) * column 2, lines 11-61; figures *	1-4,7, 11-15	
A	US 5 716 113 A (PLOURDE DONALD G [CA]) 10 February 1998 (1998-02-10) * column 3, lines 22-55; figures 2-6 *	1,12,15	
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			TECHNICAL FIELDS SEARCHED (IPC)
			B67D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 12 April 2016	Examiner Müller, Claus
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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12-04-2016

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