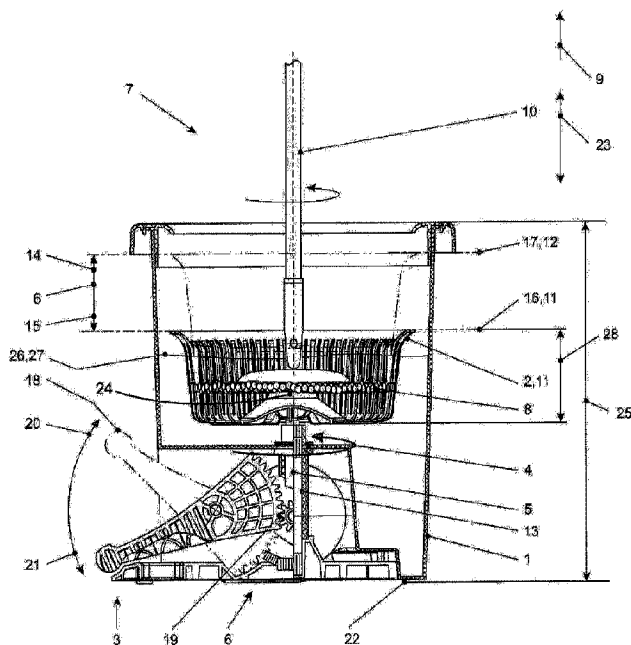




(86) Date de dépôt PCT/PCT Filing Date: 2019/05/15
(87) Date publication PCT/PCT Publication Date: 2019/12/05
(45) Date de délivrance/Issue Date: 2023/09/19
(85) Entrée phase nationale/National Entry: 2020/11/18
(86) N° demande PCT/PCT Application No.: EP 2019/062425
(87) N° publication PCT/PCT Publication No.: 2019/228799
(30) Priorité/Priority: 2018/05/28 (DE10 2018 112 658.1)

(51) Cl.Int./Int.Cl. *A47L 13/58* (2006.01)
(72) Inventeurs/Inventors:
DINGERT, UWE, DE;
MESSINEO, CARLO, DE
(73) Propriétaire/Owner:
CARL FREUDENBERG KG, DE
(74) Agent: BORDEN LADNER GERVAIS LLP

(54) Titre : SYSTEME DE NETTOYAGE COMPRENANT UN SCEAU ET UN PANIER
(54) Title: CLEANING SYSTEM COMPRISING A BUCKET AND A BASKET



(57) **Abrégé/Abstract:**

A cleaning system comprising a bucket, a liquid-permeable basket arranged in the bucket, a first actuating apparatus for setting the basket into a spinning rotational movement, a second actuating apparatus for adjusting the basket in terms of height in the bucket, and a cleaning device with a cleaning textile and a handle, wherein the basket is configured both as a rinsing basket and as a spin-drying basket for the cleaning textile, wherein the second actuating apparatus comprises a coupling mechanism which detachably connects the handle to the basket, wherein the height of the basket in the bucket can be selectively adjusted, as a result of upward and downward movement of the handle, between a first position in which the basket is positioned lower in the bucket for rinsing and a second position in which the basket is positioned higher in the bucket for spin-drying.

Abstract

A cleaning system comprising a bucket, a liquid-permeable basket arranged in the bucket, a first actuating apparatus for setting the basket into a spinning rotational movement, a second actuating apparatus for adjusting the basket in terms of height in the bucket, and a cleaning device with a cleaning textile and a handle, wherein the basket is configured both as a rinsing basket and as a spin-drying basket for the cleaning textile, wherein the second actuating apparatus comprises a coupling mechanism which detachably connects the handle to the basket, wherein the height of the basket in the bucket can be selectively adjusted, as a result of upward and downward movement of the handle, between a first position in which the basket is positioned lower in the bucket for rinsing and a second position in which the basket is positioned higher in the bucket for spin-drying.

Cleaning System Comprising a Bucket and a Basket

Technical field

5

The present disclosure relates generally to a cleaning system comprising a bucket and a liquid-permeable basket arranged in the bucket.

Background

10

In an existing cleaning system, a bucket comprises two chambers which are arranged next to one another, wherein a liquid for rinsing and cleaning the cleaning textile is located in one of the chambers, and a spin-drying basket is arranged in the other chamber in order to be able to subsequently spin-dry the cleaning textile which has been
15 rinsed beforehand. The rinsing and cleaning of the cleaning textile is carried out in that the cleaning device with the cleaning textile fastened thereto is rinsed by being immersed in the liquid and being pivoted back and forth therein. The cleaning device with the rinsed cleaning textile is subsequently moved into the spin-drying basket and spin-dried there. The spin-drying takes place in such a way that the spin-drying basket
20 and the cleaning textile arranged therein are set into the rotational movement by means of the first actuating apparatus. In this case, the cleaning textile is spin-dried due to centrifugal force.

The first actuating apparatus is usually a foot pedal.

25

In another existing cleaning system, a wringing-out apparatus has a funnel-shaped wringing-out basket. The wringing-out apparatus is clipped onto the upper edge of a bucket in a destruction-free releasable and positively locking manner. The cleaning textile, for example textile cleaning fringes arranged on a mop head, can be inserted into the wringing-out basket from above and then be pushed into the basket by means of the
30 handle of the cleaning device. In this case, cleaning liquid is pressed out of the cleaning fringes. As the mop head is pushed into the wringing-out basket the external diameter of

said basket is, as a result of articulated lamellae, reduced in a manner proportional to the pressure that the user exerts on the mop head, and thus on the cleaning fringes, by means of the handle. As a result, the pressing of the cleaning liquid out of the cleaning fringes is additionally supported.

5

The handling of the existing cleaning systems is not very user-friendly, in particular not very comfortable, because the cleaning device with the cleaning textile located thereon has to be moved, from rinsing to spin-drying, between two different chambers in the bucket or because considerable forces are required in order to be able to wring out the cleaning textile to a sufficiently great extent; for example in order to subsequently be able to clean sensitive surfaces with an only slightly moist cleaning textile.

10

Summary

15

The present disclosure is based, in at least one aspect, on an object of further developing a cleaning system in such a way that said cleaning system has more compact dimensions and that use thereof is simplified.

20

According to the present disclosure, a cleaning system is provided comprising a bucket and a liquid-permeable basket arranged in the bucket, wherein the basket is arranged so as to be able to be set into a rotational movement by a first actuating apparatus and so as to be able to be adjusted in terms of height in the bucket by a second actuating apparatus, and a cleaning device with a cleaning textile, wherein the cleaning device has a handle on its side facing away from the cleaning textile and wherein the basket is configured both as a rinsing basket and as a spin-drying basket for the cleaning textile, wherein the second actuating apparatus comprises the handle and a ball pen mechanism, by way of which the basket can be positioned, as a result of upward and downward movement of the handle, in a first position which is lowest in the bucket and in a second position which is highest in the bucket.

25

30

In addition, according to the present disclosure, a cleaning system is provided comprising a bucket, a liquid-permeable basket arranged in the bucket, a cleaning device with a cleaning textile, wherein the cleaning device has a handle on its side facing away from the cleaning textile, a first actuating apparatus configured to be able to
5 be set the basket into a rotational movement, a second actuating apparatus configured to be able to adjust the basket in terms of height in the bucket, the second actuating apparatus comprising a shaft axially positioned within the bucket about which the basket is arranged to spin, and, a coupling mechanism which detachably connects the handle of the cleaning device to the basket in a rotationally fixed manner and in a tension-
10 resistant and destruction-free releasable manner in the axial direction, the coupling configured to transmit a tensile force which corresponds at least to the weight force of the basket during intended use of the cleaning system, the coupling configured to transmit a tensile force that is smaller than the weight force of the liquid-filled bucket, whereby, when the handle is coupled to the basket, upward or downward movement of
15 the handle of the cleaning device relative to the basket is configured to selectively adjust the height of the basket within the bucket between a first position in which the basket is positioned lower in the bucket for rinsing, a second position in which the basket is posited higher in the bucket for spin-drying, wherein the basket is configured both as a rinsing basket and as a spin-drying basket for the cleaning textile.

20

In an embodiment, the coupling mechanism is configured as a latching coupling.

In an embodiment, the coupling mechanism is configured as a magnetic coupling.

25 In an embodiment, the first actuating apparatus comprises a lever and a gear, and wherein the lever and the gear are connected in a functional manner in order to convert an upward and downward movement of the lever into the rotational movement of the basket in the first position and the second position.

30 In an embodiment, the bucket has a base which delimits the first position.

In an embodiment, during intended use of the cleaning system, the bucket has a mean water level in the height of the bucket, and wherein the cleaning textile and the basket are arranged, in the first position, completely below and, in the second position, completely above the mean water level in the bucket.

5

In an embodiment, the bucket has a maximum fillable internal height which corresponds substantially to twice the height of the mean water level in the bucket and substantially to twice the height of the basket.

10 Some other example possible configurations are described herein.

In an embodiment, provision is made for a cleaning system comprising a bucket and a liquid-permeable basket arranged in the bucket, wherein the basket is arranged so as to be able to be set into a rotational movement by a first actuating apparatus and so as to be able to be adjusted in terms of height in the bucket by a second actuating apparatus, and a cleaning device with a cleaning textile, wherein the cleaning device has a handle on its side facing away from the cleaning textile and wherein the basket is configured both as a rinsing basket and as a spin-drying basket for the cleaning textile, wherein the second actuating apparatus comprises the handle and a ball pen mechanism, by way of which the basket can be positioned, as a result of upward and downward movement of the handle, in a first position which is lowest in the bucket and in a second position which is highest in the bucket.

It is advantageous, in an embodiment, that the bucket has particularly compact dimensions. For the rinsing and the spin-drying of the cleaning textile, use is made of one and the same basket which is arranged in a height-adjustable manner in the bucket. The height position is dependent on the respectively desired function. If the basket is being used as a rinsing basket, the basket is arranged in its lowest, first position in the bucket and is at least substantially completely flowed around by liquid.

30

If the basket is correspondingly being used as a spin-drying basket, said basket may positioned in its highest, second position in the bucket and may arranged at least substantially completely outside of the liquid.

- 5 The basket is set into a rotational movement by the first actuating apparatus both during the rinsing and during the spin-drying of the cleaning textile. As a result, the cleaning textile is not only spin-dried in a particularly effective manner, as is known from the prior art, but is also rinsed in an effective and thorough manner beforehand when the rotating basket is located in its lowest, first position in the bucket.

10

The compact dimensions are also produced because the basket is always moved up and down coaxially in the bucket.

- 15 In order to realize such an upward and downward movement of the basket in the bucket, the ball pen mechanism is provided, by way of which the basket can be positioned - as a result of upward and downward movement of the handle - in the first position which is lowest in the bucket and in the second position which is highest in the bucket.

- 20 A ball pen mechanism per se is known from the prior art and for example from US 3,205,863.

- 25 In the case of the claimed cleaning system, this means that, proceeding from the lowest, first (rinsing) position of the basket in the bucket and an already rinsed cleaning textile, the basket is pulled upward in an axial direction by means of the handle as far as a stop in the ball pen mechanism, wherein the basket can subsequently be lowered only a short distance to its highest, second position in the bucket as a result of the ball pen mechanism. The basket then has the function of a spin-drying basket. The spin-drying basket is set into the rotational movement by the first actuating apparatus. The cleaning textile located in the spin-drying basket is spin-dried as a result.

30

The cleaning device is subsequently pulled upward in the axial direction out of the basket and here initially takes the basket along as far as the aforementioned stop in the ball pen mechanism. Upon further pulling on the handle in the axial direction, the cleaning device then releases from the basket, and the basket in the bucket lowers automatically into its lowest, first position in the bucket. The basket, which then has the function of a rinsing basket again, is prepared for the next rinsing operation of the cleaning textile.

If the cleaning textile, after use thereof, is subsequently rinsed again, it is placed into the rinsing basket from above and, just like the basket, is flowed around by liquid as a result. The first actuating apparatus is subsequently actuated. As a result, the basket is set into the rotational movement, and the cleaning textile is rinsed thoroughly. Thereafter, the handle, as described above, is pulled upward in the axial direction as far as the stop and subsequently lowers to the level of the highest, second position in the bucket. The basket and also the cleaning textile located in the basket are then completely in the open. As a result of the rotational movement of the basket, the cleaning textile is then dewatered again.

As a result of the use of the ball pen mechanism for adjusting the height of the basket in the bucket, the cleaning system can be produced in a simple and cost-effective manner, has compact dimensions, as described above, and is simple to operate for the user, owing to its intuitive nature.

The first actuating apparatus can comprise a lever and a gear, wherein the lever and the gear are connected in a functional manner in order to convert an upward and downward movement of the lever into the rotational movement of the basket in its lowest, first position and its highest, second position. In an embodiment, the lever is preferably formed by a foot pedal which is arranged in a pivotable manner in the region of the base of the bucket.

The gear can effect a step-up transmission ratio, such that an upward and downward movement of the lever at normal speed leads to a high rotational speed of the basket. The first actuating apparatus can comprise a freewheel, such that the basket, and the cleaning textile arranged therein, once driven, then also remain in rotation - at least temporarily - when the actuating pedal is no longer actuated.

In an embodiment, in the lowest position of the basket in the bucket, the basket is preferably completely flowed around by cleaning liquid. It may be advantageous here that the cleaning textile is immersed completely in the cleaning liquid during rinsing. The rinsing of the cleaning textile therefore takes place in a particularly rapid and thorough manner.

In an embodiment, if the basket is correspondingly located in its highest, second position in the bucket, said basket is preferably arranged completely above a liquid level in the bucket.

The bucket can have a base which forms an abutment for the ball pen mechanism and delimits the lowest, first position.

In an embodiment, the ball pen mechanism is preferably arranged in the axial direction between the basket and the base. The arrangement of the ball pen mechanism in the center of the basket may reduce disadvantageous canting and wear of the ball pen mechanism during use thereof to a minimum. As a result, the cleaning system has consistently good performance characteristics over a long service life.

In an embodiment, the basket and the cleaning device are preferably connected to one another by a coupling in a rotationally fixed manner and in a tension-resistant and destruction-free releasable manner in the axial direction. Such a coupling makes it possible for the basket to be taken along in the axial direction as a result of an upward and downward movement of the handle of the cleaning device. The ball pen mechanism

is actuated as a result, and the basket is moved back and forth inside the bucket between the lowest and highest positions.

For effective rinsing and subsequent spin-drying of the cleaning textile, it is necessary for the rotational movement of the basket to be transmitted to the cleaning textile, and
5 thus the cleaning device, in as slip-free a manner as possible, such that the cleaning textile and the cleaning device rotate at the same rotational speed as the basket itself.

The tensile force, which is transmitted by the coupling between the cleaning device and the basket, has to be of such a magnitude that, on the one hand, the ball pen
10 mechanism can be reliably actuated and that, on the other hand, the cleaning device, after the cleaning textile has been spin-dried, can be readily removed from the basket.

To this end, the coupling transmits a tensile force which corresponds at least to the weight force of the basket during intended use of the cleaning system. As a result, the
15 basket, which is fastened to the cleaning device by means of the coupling, can be pulled in the axial direction out of its lowest, first position into its highest, second position.

The coupling also transmits a tensile force which is smaller than the weight force of the liquid-filled bucket. As a result, the tensile force which can be transmitted is under no
20 circumstances so great that the liquid-filled bucket remains hung on the upwardly moving handle of the cleaning device if the cleaning device is intended to be removed from the basket after the cleaning textile has been spin-dried. Subsequent to the spin-drying of the cleaning textile, the cleaning device is moved axially upward on the handle as far as the stop of the ball pen mechanism. If the coupling between the basket and the
25 cleaning device subsequently releases because the tensile force is no longer transmitted, the cleaning device is freed for its intended use, and the basket automatically lowers back into its lowest, first position in the bucket.

The coupling can be configured as a latching and/or magnetic coupling. A magnetic
30 coupling has the advantage that the coupling between the basket and the cleaning

device is effected in a largely automatic manner. This may be advantageous if the user's view of the coupling is limited during the insertion of the cleaning device into the basket.

During intended use of the cleaning system, the bucket can have a mean water level in the height of the bucket, wherein, in an embodiment, provision is preferably made for the cleaning textile and the basket to be arranged, in the lowest, first position, completely below and, in the highest, second position, completely above the mean water level in the bucket. In the lowest, first position, the cleaning textile is rinsed in a particularly thorough manner, and in the highest, second position, it is correspondingly spin-dried in a particularly effective manner. Such a separation of functions is of crucial importance for good performance characteristics.

The bucket can have a maximum fillable internal height which corresponds substantially to twice the height of the mean water level in the bucket and substantially to twice the height of the basket. Such size ratios have proven to be advantageous in particular because one and the same cleaning system can be used, on the one hand, for rinsing the cleaning textile and, on the other hand, for spin-drying the cleaning textile which has been rinsed beforehand. Although such a configuration provides a complete separation of functions, as described above, the cleaning system nevertheless has compact dimensions overall and can be operated in a simple manner.

Brief description of the drawing

An example embodiment of the cleaning system according to the present disclosure and its functioning are described in more detail below with reference to figures 1 to 3.

Said figures show, in each case in a schematic illustration:

figure 1: a cleaning system during the rinsing of the cleaning textile,

figure 2: the cleaning system from figure 1 during the subsequent spin-drying of the cleaning textile,

figure 3: a removal of the cleaning device from the spin-drying basket, before said
5 basket lowers back into the position illustrated in figure 1 in the bucket.

Detailed Description

Figure 1 shows an example embodiment of the cleaning system according to the
10 present disclosure, wherein the cleaning system comprises the bucket 1, the liquid-permeable basket 2 arranged in the bucket 1 and the first actuating apparatus 3 in the form of a lever 18 in order to set the basket 2 into a rotational movement 4. In addition to the lever 18, which is configured in an example fashion as a foot pedal, the first actuating apparatus 3 comprises a gear 19 to which the lever 18 is connected in a
15 functional manner. As a result, the upward 20 and downward movement 21 of the lever 18 is converted into the rotational movement 4 of the basket 2. Irrespective of whether the basket 2 is located in its lowest, first position 16 or its highest, second position 17, the basket 2 can be set into rotational movement 4 by the first actuating apparatus 3.

20 The basket 2 is also arranged in a height-adjustable manner inside the bucket 1. In order to be able to adjust the basket 2 in terms of height 6 in the bucket 1, the second actuating apparatus 5 is provided, which comprises the handle 10 and a ball pen mechanism 13, by way of which the basket 2 can be positioned, as a result of upward 14 and downward movement 15 of the handle 10, in a first position 16 which is lowest in the
25 bucket 1 and in a second position 17 which is highest in the bucket. The cleaning device 7 is provided with the cleaning textile 8. Here, the cleaning textile 8 is formed in an example fashion by cleaning fringes. The handle 10 of the cleaning device 7 is arranged on the side 9 facing away from the cleaning textile 8. At the bottom of the bucket, in the lowest, first position 16, the basket 2 forms a rinsing basket 11, and in its highest,
30 second position 17 it correspondingly forms a spin-drying basket 12.

The base of the bucket 1 is provided with the reference designation 22.

The bucket 1, the basket 2 and the ball pen mechanism 13 are arranged coaxially relative to one another, wherein the ball pen mechanism 13 is arranged in the axial
5 direction 23 of the handle 10, which is arranged in the basket 2 during intended use, between the basket 2 and the base 22.

Between the basket 2 and the cleaning device 7, provision is made for the coupling 24 which connects the basket 2 and the cleaning device 7 to one another in a rotationally
10 fixed manner and in a tension-resistant and nevertheless destruction-free releasable manner in the axial direction 23.

During intended use of the cleaning system, the bucket 1 has a mean water level 26 in the height 25 of the bucket 1, wherein the cleaning textile 8 and the basket 2 are
15 arranged, in the lowest, first position 16, completely below and, in the highest, second position 17, as illustrated in figure 2, completely above the mean water level 26 in the bucket 1.

The bucket 1 has a maximum fillable internal height 27 which corresponds substantially
20 to twice the height of the mean water level 26 in the bucket 1 and substantially to twice the height 28 of the basket 2. As a result, the bucket is only as tall as absolutely necessary for the described functions. Overall, the cleaning system therefore has compact dimensions not only in diameter but also in height 25, and can be handled in a simple manner by the user as a result.

25

The cleaning device 7 is arranged with its cleaning textile 8 in the rinsing basket 11. In the lowest, first position 16, the rinsing basket 11 and the cleaning textile 8 are each arranged completely below the mean water level 26 in the bucket.

In order to rinse the cleaning textile, the first actuating apparatus 3 in the form of the
30 lever 18 is actuated. As a result, the rinsing basket 11 is set into a rotational movement 4.

As soon as the cleaning textile 8 has been rinsed, the second actuating apparatus 5 in the form of the handle 10 and the ball pen mechanism 13 are operated.

Proceeding from the lowest, first position 16, the basket 2, which previously had the function of a rinsing basket 11, is pulled by way of the handle 10 into the highest, second position 17, as illustrated in figure 2. As a result of the ball pen mechanism 13, the basket 2 latches into its highest, second position 17 and then has the function of a spin-drying basket 12. The spin-drying basket 12 is located completely above the mean water level 26 in the bucket 1.

10

The tensile force for moving the basket 2 from its lowest, first position 16 into its highest, second position 17 is transmitted by the coupling 24 which connects the basket 2 and the cleaning device 7.

15 In figure 2, the cleaning textile 8 which has been rinsed beforehand is spin-dried. To this end, the basket 2 is moved into the highest, second position 17 by means of the ball pen mechanism 13, as described above, and once again set into rotational movement 4 by the first actuating apparatus 3 in the form of the lever 18.

20 In figure 3, the cleaning textile 8 of the cleaning device 7 has been largely spin-dried and is removed from the basket 2 by the user. This takes place by increasing the tensile force, wherein the tensile force for releasing the coupling 24 is smaller than the weight force of the liquid-filled bucket 1. As a result, the bucket 1 remains securely in place during the release of the coupling 24, and the cleaning device 7 can be reliably removed
25 from the basket 2.

As a result of the renewed automatic actuation of the ball pen mechanism 13 during the release of the coupling 24, the basket 2 again subsequently slides back automatically into the lowest, first position 16 illustrated in figure 1 and is therefore prepared if the
30 cleaning textile 8 of the cleaning device 7 is intended to be rinsed again.

~~~~

## Claims

1. A cleaning system comprising:

a bucket;

a liquid-permeable basket arranged in the bucket;

a cleaning device with a cleaning textile, wherein the cleaning device has a handle on its side facing away from the cleaning textile;

a first actuating apparatus for setting the basket into a spinning rotational movement;

a second actuating apparatus for adjusting the basket in terms of height in the bucket, the second actuating apparatus comprising:

a shaft axially positioned within the bucket about which the basket is arranged to spin, and;

a coupling mechanism which detachably connects the handle of the cleaning device to the basket in a rotationally fixed manner and in a tension-resistant and destruction-free releasable manner in the axial direction, the coupling mechanism configured to transmit a tensile force which corresponds at least to the weight force of the basket during intended use of the cleaning system, the coupling mechanism configured to transmit a tensile force that is smaller than the weight force of the liquid-filled bucket, whereby, when the handle is coupled to the basket, upward or downward movement of the handle of the cleaning device relative to the basket is configured to selectively adjust the height of the basket within the bucket between:

a first position in which the basket is positioned lower in the bucket for rinsing; and

a second position in which the basket is posited higher in the bucket for spin-drying,

wherein the basket is configured both as a rinsing basket and as a spin-drying basket for the cleaning textile.

2. The cleaning system as claimed in claim 1, wherein the coupling mechanism is configured as a latching coupling.
3. The cleaning system as claimed in claim 1 or 2, wherein the coupling mechanism is configured as a magnetic coupling.
4. The cleaning system as claimed in any one of claims 1 to 3, wherein the first actuating apparatus comprises a lever and a gear, and wherein the lever and the gear are connected in a functional manner in order to convert an upward and downward movement of the lever into the spinning rotational movement of the basket in the first position and the second position.
5. The cleaning system as claimed in claim 1, wherein the bucket has a base which delimits the first position.
6. The cleaning system as claimed in one of claims 1 to 5, wherein, during intended use of the cleaning system, the bucket has a mean water level in the height of the bucket, and wherein the cleaning textile and the basket are arranged, in the first position, completely below and, in the second position, completely above the mean water level in the bucket.
7. The cleaning system as claimed in one of claims 1 to 6, wherein the bucket has a maximum fillable internal height which corresponds substantially to twice the height of the mean water level in the bucket and substantially to twice the height of the basket.

Figure 1

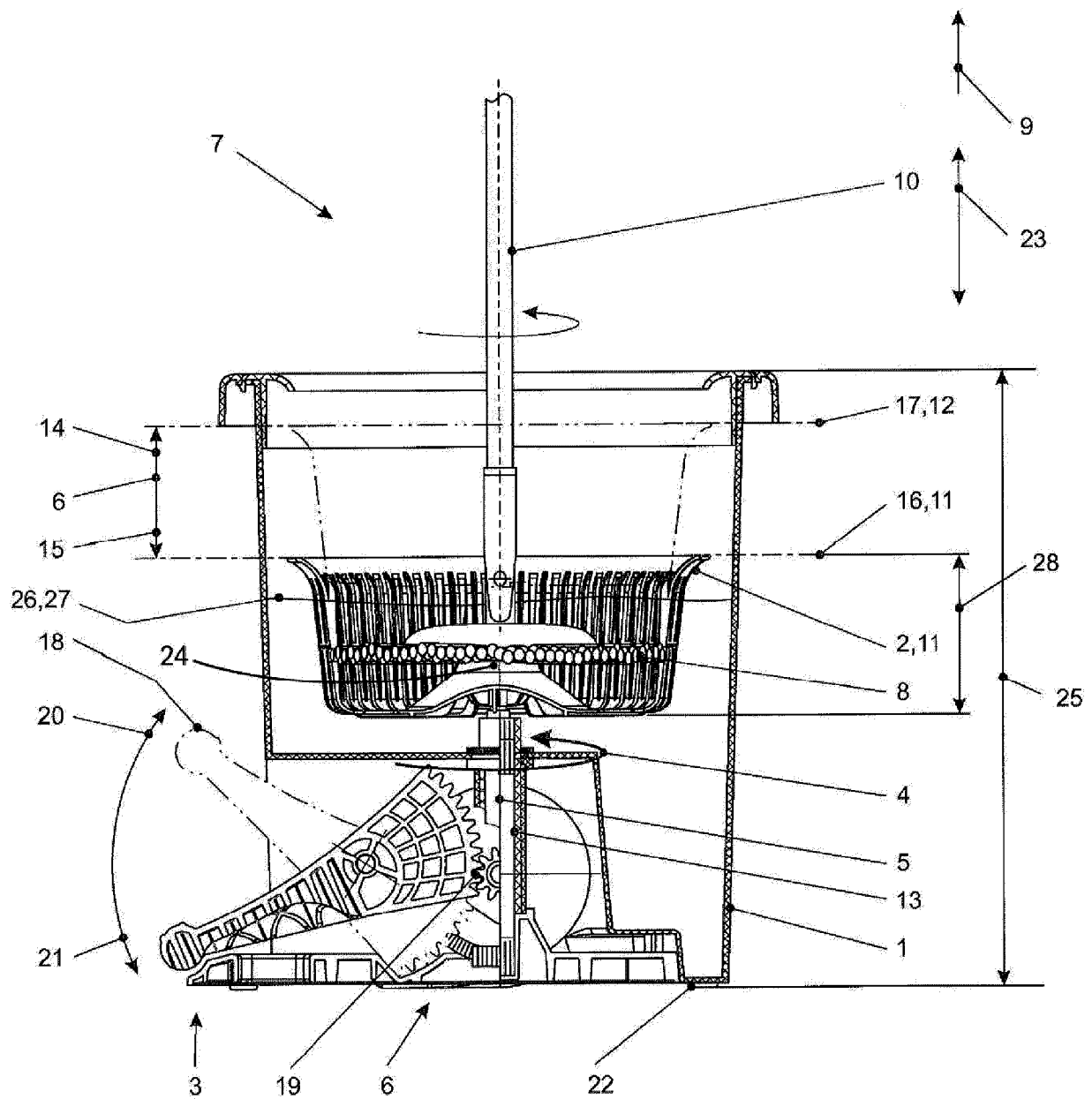


Figure 2

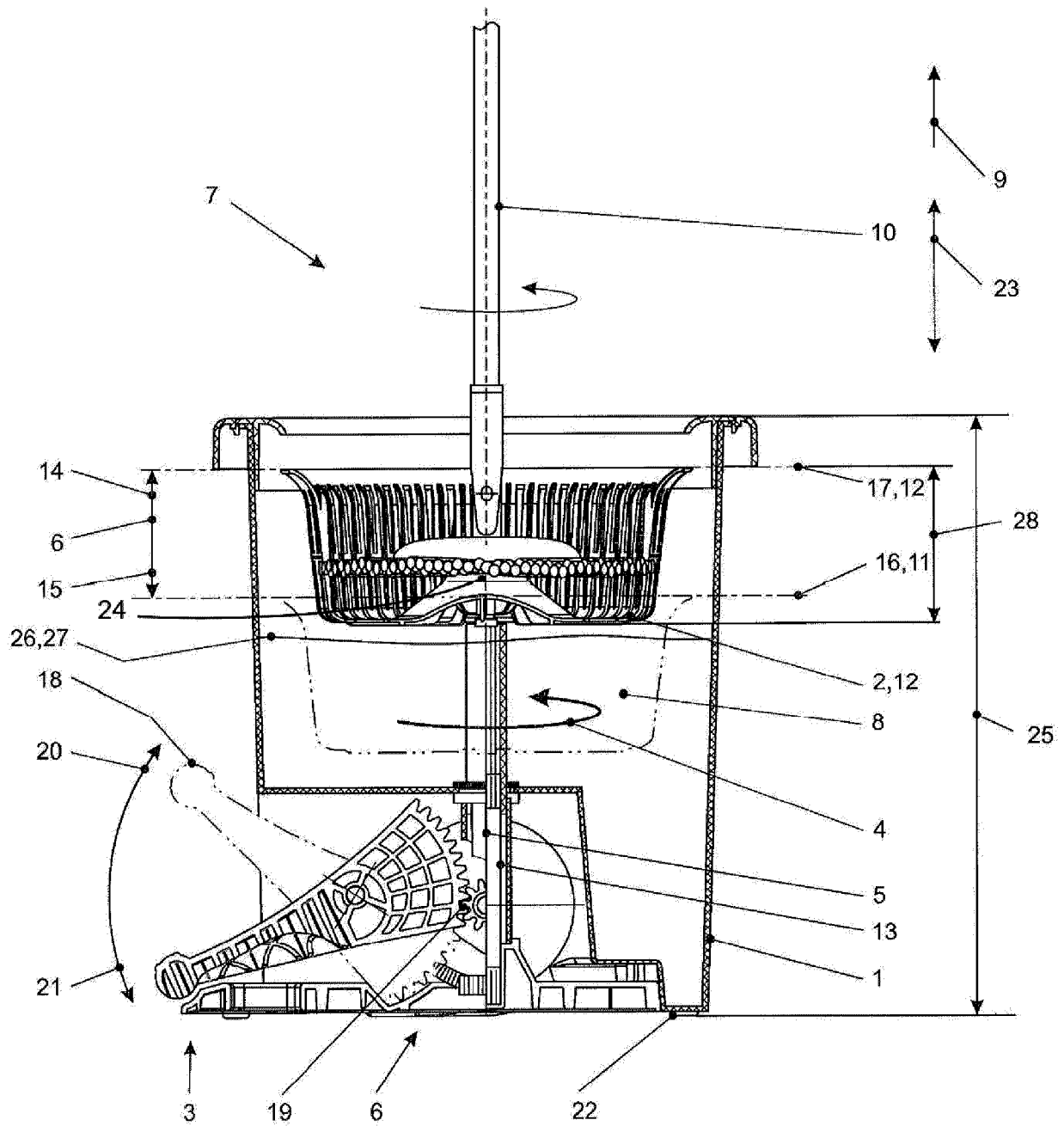


Figure 3

3/3

