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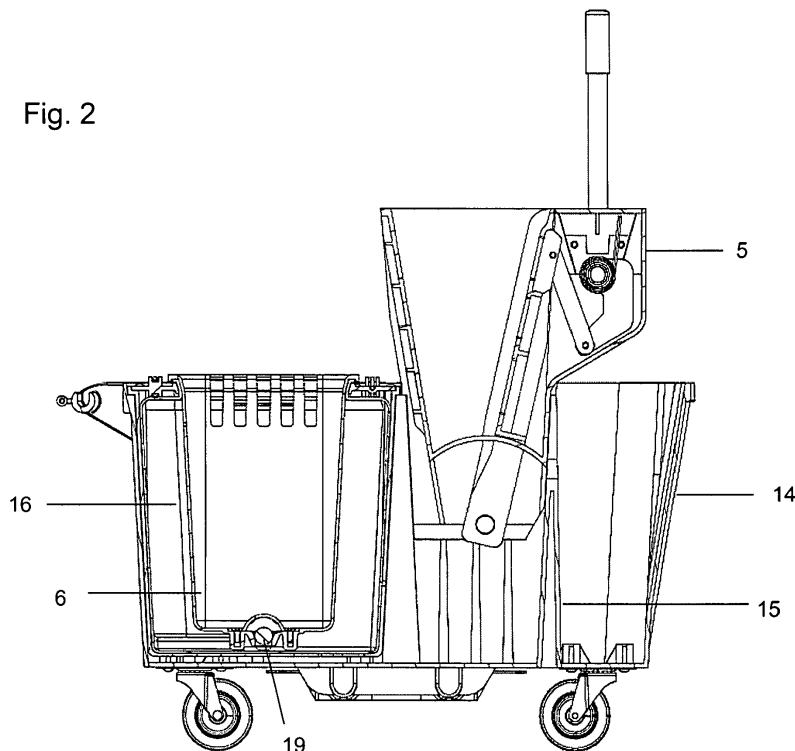
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(54) Mop wringer and bucket assembly

(57) Mop bucket assembly for use with a wringer device (5) and a mop, including a container (1) having partition elements (11-13) dividing the container (1) into compartments (14-16). A first compartment (14) contains a liquid for rinsing a mop head after mopping. A second compartment (15) receives a liquid extracted from the mop head by the wringer device (5). A third compartment (16) contains a cleaning solution. A housing (6) is received in the third compartment (16), and a flexible bladder (7) is disposed in the housing (6) and is in fluid communication with the third compartment (16). The flexible bladder (7) contains a supply of cleaning solution. Liquid extracted from the mop head by the wringer device (5) flows through an opening in one of the partition elements (16) and places pressure on the flexible bladder (7), causing the cleaning solution in the flexible bladder (7) to flow into the third compartment (16) to maintain a desired level of cleaning solution in the third compartment (16).

der (7) is disposed in the housing (6) and is in fluid communication with the third compartment (16). The flexible bladder (7) contains a supply of cleaning solution. Liquid extracted from the mop head by the wringer device (5) flows through an opening in one of the partition elements (16) and places pressure on the flexible bladder (7), causing the cleaning solution in the flexible bladder (7) to flow into the third compartment (16) to maintain a desired level of cleaning solution in the third compartment (16).

Fig. 2



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Description

Field of the Invention

[0001] The invention relates to an improved mop bucket assembly for use with a wringer device and a mop. In particular, the invention relates to a mop bucket assembly including a container having multiple compartments and a flexible bladder for storing and dispensing a cleaning solution.

The Prior Art

[0002] U.S. Patent Application Publication No. 2007/0022559 to Dalton shows a mop bucket bag insert which can be used to capture dirty excess water and/or clean water during the mopping process. U.S. Pat. No. 6,560,815 to Brennan et al. shows a mop squeezing device including a dedicated bucket or bucket insert divided longitudinally into two compartments.

[0003] U.S. Patent Application Publication No. 2005/0086760 to Young shows a multicompartment cleaning bucket having a partition element dividing the bucket into a first compartment for receiving liquid wrung out from a wringer and a second compartment for receiving a cleaning liquid. A dirt receiving element or filter is disposed in the first compartment for receiving dirt settling from the cleaning liquid in the second compartment.

[0004] U.S. Patent Application Publication No. 2005/0076465 to Rousey shows a mop bucket filtering system including a dual basin bucket with an exteriorly mounted pump and filter. U.S. Patent No. 4,751,763 to Rose et al. shows a mop bucket insert including a platform suspended above the bottom of the bucket which provides a surface for applying the mop to remove solids from the mop head. The solids settle into the lower portion of the bucket below the platform, preventing suspension of the solids in the cleaning liquid when the mop agitates the liquid.

[0005] U.S. Patent No. 4,713,859 to Smith, Jr. shows a bucket assembly with a drain opening formed in the lowermost portion of the bucket, a valve assembly for selectively opening and closing the drain and a movable filter element for removing insoluble debris from the discharged liquid.

[0006] U.S. Patent No. 6,279,195 to Biggs shows an ergonomic mop bucket including a foot operated wringer, a drain mechanism and a filter element positioned between the front and rear of the bucket to inhibit the travel of suspended particulates from the area where the mop head is wrung out to the area where the clean fluid is contained. In addition to the above mentioned references, U.S. Patent No. 5,627,150 to Peterson et al. shows a container for dispensing solid chemicals such as detergents. The container includes a plastic bladder within a paperboard housing.

[0007] US Patent No. 7,437,795 to Kris Bez the inventor of the present invention teaches a mop bucket as-

sembly comprising a container having a plurality of partition elements disposed therein. The plurality of partition elements divide the container into a plurality of compartments. A flexible bladder for containing a supply of cleaning solution is disposed in one the compartments. A liquid extracted from the mop head by the wringer device places pressure on an outer surface of the flexible bladder, causing the cleaning solution in the flexible bladder to flow into another of the compartments.

[0008] However, most of the prior art mop bucket assemblies involved complicated mechanisms and were very quite heavy to prevent flexible handling of the assembly. In order to obviate the drawbacks of the prior art, present invention provide a flexible mop bucket assembly with a simple working mechanism.

SUMMARY OF THE INVENTION

[0009] The invention relates to a mop bucket assembly for use with a wringer device and a mop having a mop head. Said mop bucket assembly is an improvement of the mop bucket assembly taught by US Patent No. 7,437,795, the disclosures of which is incorporated herein by reference.

[0010] A mop bucket assembly according to an embodiment of the invention includes a container having a plurality of partition elements disposed therein. The plurality of partition element divides the container into a plurality of compartments. A flexible bladder for containing a supply of cleaning solution is disposed in one the compartments. A liquid extracted from the mop head by the wringer device places pressure on an outer surface of the flexible bladder, causing the cleaning solution in the flexible bladder to flow into another of the compartments.

[0011] A mop bucket assembly according to another embodiment of the invention includes a container and a plurality of partition elements disposed within the container. The plurality of partition elements divide the container into a plurality of compartments including a first compartment for containing a liquid for rinsing the mop head after mopping, a second compartment for receiving a liquid extracted from the mop head by the wringer device, a third compartment for containing a cleaning solution.

[0012] The housing is adapted to be received in the third compartment and a flexible bladder for containing a supply of the cleaning solution is disposed in the housing.

[0013] The liquid extracted from the mop head by the wringer device flows through an opening in one of the plurality of partition elements disposed between the second and third compartments and places pressure on an outer surface of the flexible bladder. This pressure causes the cleaning solution in the flexible bladder to flow to maintain a desired level of cleaning solution in the third compartment.

[0014] An advantage of the mop assembly of the present invention is that the assembly has been made

user friendly by simplifying the working mechanism. Also, the assembly is light in weight to enable the easy handling of the machine.

[0015] Further, upper lip has been added to increase strength of bucket and handle. Removable clean water bladder container has now been incorporated directly into wash station and is no longer removable. Valve assembly for water from bladder area to clean water dip area is simple in comparison to the prior art assemblies. Part count of said assembly has decrease and is now incorporated directly into basin design. Bladder connection to clean water cover is also less complicated and "O" rings of the prior art assemblies is no longer needed. Bladder connection to valve assembly has been simplified. "O" ring no longer needed. Top cover is designed to drain water to rinse / dirty water area. Three drain valves have been incorporated with levers. Bottom of basin has been contorted to facilitate complete water drainage through valves. Wheel sizes have been changed to smaller wheel assemblies. Further, the size of squeegee assembly has increased to accommodate larger mops. The accusation mechanism of the present invention has lesser complicated parts in contrast to the earlier mop bucket assemblies. Holes / slots for removal have been decreased in size and increased in number to better facilitate functionality. Side wall have been increased for strength. Handle had been redesigned into a two piece assembly. (for shipping reasons). Sizes of unit have been standardized so this unit can be used in other assemblies.

[0016] Another advantage of a mop bucket assembly according to an embodiment of the invention is that a constant, fresh supply of cleaning solution may be provided to the compartment or chamber into which the mop head is wetted for cleaning a floor or other surface. A further advantage of a mop bucket assembly according to an embodiment of the invention is that the pressure exerted by the dirty water extracted from the mop head on the flexible bladder can maintain a substantially constant level of cleaning solution in the cleaning solution compartment.

[0017] Another advantage of a mop bucket assembly according to an embodiment of the invention is that the dirty water extracted from the mop head is segregated from the cleaning solution used to mop the floor or other surface.

DETAILED DESCRIPTION OF THE DRAWINGS

[0018]

Figure 1: top and bottom view of the mop bucket assembly

Figure 2: side view of the mop bucket assembly

Figure 3: front view of the mop bucket assembly

DETAILED DESCRIPTION OF THE INVENTION

[0019] Referring now in detail to the drawings and, in

particular, FIG. 1 shows a top perspective view of a mop bucket assembly for use with a wringer device 5. The assembly includes a container 1. Container 1 may be similar in dimensions and shape to conventional mop buckets and may be formed from metal, plastic or any other suitable water tight material or materials. For example, container 1 may have a generally rectangular shape. Wheels or casters may be provided on or near the underside of container 1 to allow container 1 to be easily moved by rolling container 1 along a floor surface.

[0020] Container 1 includes a plurality of partition elements 11, 12, 13 disposed within the container. Partition elements 14, 15, 16 may comprise for example, rigid walls extending upwardly from a bottom inside surface of container 1 to at or about an upper edge of container 1 as shown.

[0021] The partition elements divide container 1 into a plurality of compartments or chambers. For example, partition elements 11 and 13 may extend between opposing sides of container 1 and partition element 16 may extend between partition elements 11 and 13, thereby forming three compartments 14, 15 and 16 wherein each compartment is defined by one or more of the partition elements and one or more side walls of container 1.

[0022] The plurality of compartments may include a first compartment 14 for containing a liquid, such as water, for rinsing the mop head after mopping. A second compartment 15 is adapted to accept a wringer device 5 for removing dirty liquid from the mop head after mopping a surface. Wringer 5 may be supported on an upper portion of second compartment 15, for example on a top portion of the partition element(s) and/or container wall (s). The dirty mop head is inserted into wringer 5, and wringer 5 is actuated using a handle. The mop head is squeezed between the wringer plates and the dirty liquid is extracted from the mop head and drains out the bottom of wringer 5, for example through openings in the wringer basket. Second compartment 15 receives the liquid extracted from the mop head by wringer device 5.

[0023] As shown in FIGS. 1 and 2, wringer device 5 may include a handle portion which is configured such that a user grasps a grip portion of the handle and pushes in a generally downward direction to squeeze the liquid from the mop head and pulls in a generally upward direction to release the mop head from the wringer 5. This handle design facilitates operation of the wringer 5 and reduces user fatigue from repeated operation of the wringer 5.

[0024] A third compartment 16 may also be provided in container 1 for containing a cleaning solution. The cleaning solution is a liquid, for example water, and may include any of various cleaners, detergents, soaps or other compositions to be applied to the surface being mopped. In use, the mop head is dipped in the fourth compartment or cleaning solution reservoir 16 and wetted with the cleaning solution prior to mopping the floor or surface to be cleaned.

[0025] The mop bucket assembly may include a hous-

ing 6 which is adapted to be received in the third compartment 16. Housing 6 may include a plurality of recesses 61, 62, 63 and third compartment 16 may include a plurality of corresponding projections 161, 162, 163 which are aligned with the recesses in the housing. When housing 6 is inserted into third compartment 16 of container 1, the corresponding projections and recesses function to properly locate and seat housing 6 into third compartment 16. In particular, this proper seating of housing 6 contributes to the proper functioning of valve mechanism 19, as described herein.

[0026] A flexible bladder 7 is disposed within one of the compartments of the mop bucket assembly. For example, flexible bladder 7 may be disposed within housing 6 which is received in third compartment 16. Alternatively, flexible bladder 7 may be disposed directly in one of the container compartments without using a housing. Flexible bladder 7 may be formed from a flexible, water tight material, for example a plastic or rubber material.

[0027] A housing cover 8 having a handle may be provided. Housing cover 8 is configured to fit securely over housing 6 and in combination with the housing cover handle may be used for lifting housing 6 and flexible bladder 7 out of a respective container compartment.

[0028] Flexible bladder 9 contains a supply of the cleaning solution to be supplied to a separate container compartment for dipping the mop head. To facilitate the filling of flexible bladder 7 with a supply of cleaning solution, a removable cap 71 may be provided. Removable cap 71 may be threaded, snapped or otherwise coupled to flexible bladder 7 so that cap 31 may be readily removed for filling of bladder 7 and replaced once bladder 7 is filled.

[0029] As shown, for example in cross section in FIG. 2, flexible bladder 9 is in fluid communication with a compartment for holding the cleaning solution, for example fourth compartment 14. This fluid communication between the flexible bladder 7 and container compartment may be provided.

[0030] In use, the dirty liquid extracted from the mop head by the wringer device 5 flows through one or more openings in one of the partition elements disposed between the compartment in which the wringer is situated and the compartment in which the flexible bladder is situated. For example, as shown in FIGS. 1 and 2, dirty liquid extracted from the mop head by wringer 5 may flow from second compartment 15 to third compartment 16 through opening 161 in partition 16 between the second and third compartments.

[0031] The liquid extracted from the mop head places pressure on an outer surface of flexible bladder 9, causing the cleaning solution in the flexible bladder to flow into another compartment. In this way, a constant, fresh supply of cleaning solution may be provided to the compartment or chamber into which the mop head is wetted for cleaning a floor or other surface. The pressure exerted by the dirty water extracted from the mop head on the flexible bladder can maintain a substantially constant lev-

el of cleaning solution in the cleaning solution compartment. The above-described configuration also has the advantage of segregating the dirty water extracted from the mop head from the cleaning solution used to mop the floor or other surface.

[0032] When housing 6 is used in combination with flexible bladder 7, housing 1 may include one or more openings 64 for allowing the liquid extracted from the mop head to flow around the flexible bladder 7.

[0033] Container 1 may further include a drain valve for draining the liquid from one or more of the compartments, for example second compartment 15. Two drain valves 20 and 21 may be located at a lower portion of container 1 and may comprise any of various types of valves known in the art, such as a globe valve, gate valve, butterfly valve, ball valve or the like. Drain valves 20 and 21 are preferably designed to allow rapid draining of liquid from container 1. In use, container 1 may be positioned such that drain valves 20 and 21 are positioned over a floor drain and valves 20 and 21 are opened to drain liquid from container 1, in particular the dirty liquid from first compartment 14 and third compartment 16. Drain valves 20 and 21 may further comprise a foot actuated drain valve which is operable by depressing a foot pedals 22 and 23 with a user's foot.

[0034] As shown in FIG. 3, a spring biased valve mechanism 6 may be disposed between the flexible bladder 9 and the compartment for containing the cleaning solution for wetting the mop head, such as third compartment 16. Spring biased valve is a gravity check ball.

[0035] Accordingly, while several embodiments of the present invention have been shown and described, it is obvious that many changes and modifications may be made thereunto without departing from the spirit and scope of the invention.

Claims

1. A mop bucket assembly comprising:
 - a) a container;
 - b) a plurality of partition elements disposed within said container, said plurality of partition elements dividing said container into a plurality of compartments; said plurality of compartments comprising:
 - i) a first compartment for containing a rinsing liquid;
 - ii) a second compartment for receiving an extracted liquid; and
 - iii) a third compartment for containing a cleaning solution;
 - c) a housing adapted to be received in said third compartment; and
 - d) a flexible bladder for containing a supply of

the cleaning solution disposed in said housing;
wherein,

said housing is provided with contorted bot-
tom to facilitate complete water drainage to-
wards the two lever drain valves 5
a removable housing is provided in the third
compartment to hold the cleaning solution;
a check ball gravity system directly incorpor-
ated into the housing for water from the 10
flexible bladder to clean water dip area;
flexible bladder connection uses a com-
pression type fit on a larger area at the top
hole of the bladder and has a ridged internal
clean water area; 15
top cover of the assembly is provided with
a handle and the snap installation of bladder
and internal ridged clean water area to drain
water to rinse/dirty water area;
two drain valves are provide in the housing, 20
located side by side on the underside of the
main basin of the housing to drain the dirty
water area and the rinse water area; said
drain valves being activated using a foot le-
ver; said foot lever drain valve involving the 25
accusation mechanism to facilitate main ba-
sin drainage.

2. The mop bucket assembly as claimed in claim 1,
wherein the ridged clean water area is placed inside 30
the bladder and lift tub.
3. The mop bucket assembly as claimed in claim 1,
wherein the spring biased valve is a gravity check 35
ball.
4. The mop bucket assembly as claimed in claim 1,
further comprising a drain valve for draining the liquid 40
from said second compartment of said container.
5. The mop bucket assembly as claimed in claim 4,
wherein said drain valve is a foot actuated drain 45
valve.
6. The mop bucket assembly as claimed in claim 1,
wherein said housing comprises a plurality of open-
ings. 50
7. The mop bucket assembly as claimed in claim 1,
wherein a partition element of said plurality of parti-
tion elements disposed between said first compart-
ment and said second compartment has an overflow
opening. 55
8. The mop bucket assembly as claimed in claim 1,
wherein said flexible bladder further comprises a re-
movable cap for filling said flexible bladder with the
supply of cleaning solution.

9. A cleaning apparatus comprising:

a) a mop having a mop head;
b) a wringer device;
c) a container;
d) a plurality of partition elements disposed with-
in said container, said plurality of partition ele-
ments dividing said container into a plurality of
compartments; said plurality of compartments
comprising:

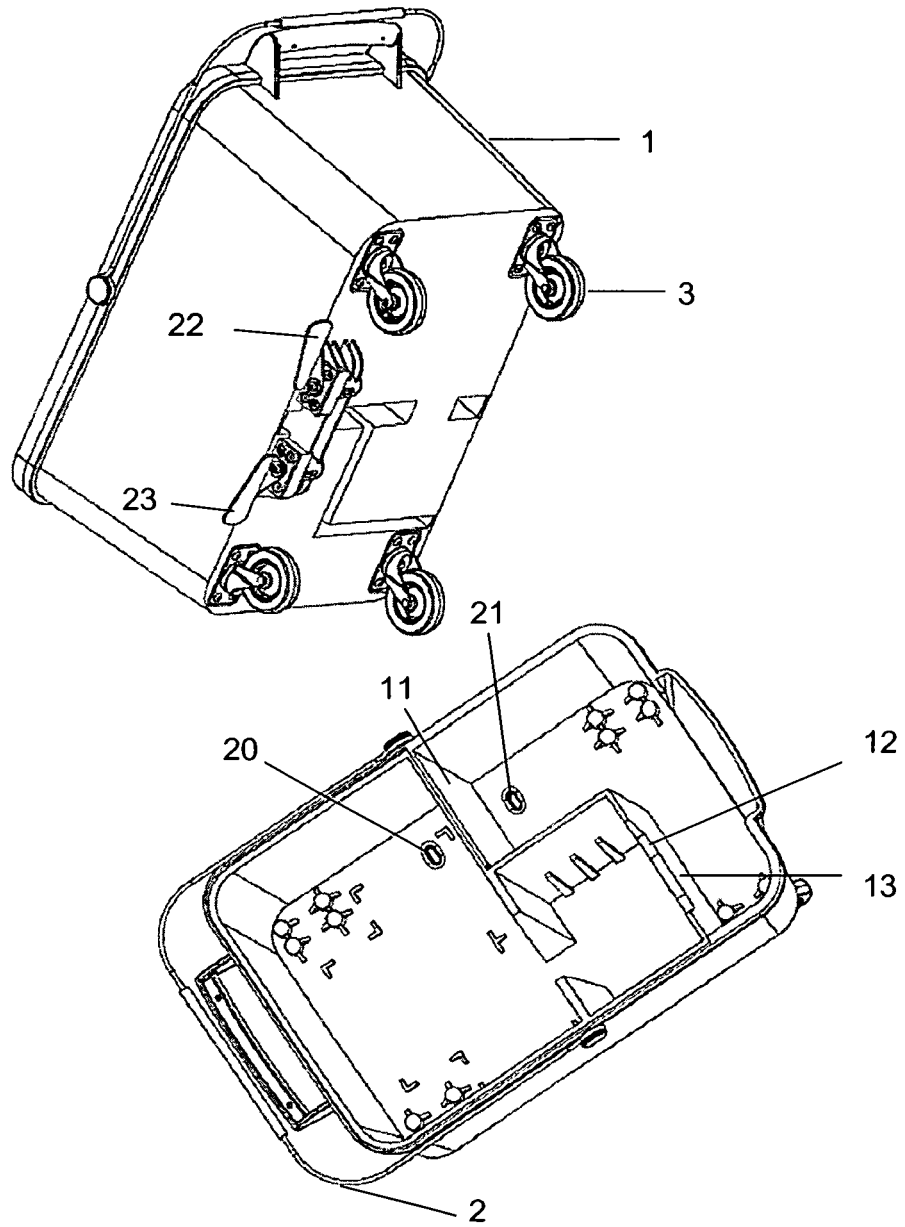
i) a first compartment for containing a rinsing
liquid;
ii) a second compartment for receiving an
extracted liquid; and
iii) a third compartment for containing a
cleaning solution;

e) a housing adapted to be received in said third
compartment; and
f) a flexible bladder disposed in said housing and
in fluid communication with said fourth compart-
ment, said flexible bladder for containing a sup-
ply of the cleaning solution;
wherein,

said housing is provided with contorted bot-
tom to facilitate complete water drainage to-
wards the two lever drain valves
a removable housing is provided in the third
compartment to hold the cleaning solution;
a check ball gravity system directly incorpor-
ated into the housing for water from the
flexible bladder to clean water dip area;
flexible bladder connection uses a com-
pression type fit on a larger area at the top
hole of the bladder and has a ridged internal
clean water area;
top cover of the assembly is provided with
a handle and the snap installation of bladder
and internal ridged clean water area to drain
water to rinse/dirty water area;
two drain valves are provide in the housing,
located side by side on the underside of the
main basin of the housing to drain the dirty
water area and the rinse water area; said
drain valves being activated using a foot le-
ver; said foot lever drain valve involving the
accusation mechanism to facilitate main ba-
sin drainage.

10. A mop bucket assembly substantially as herein de-
scribed with reference to the accompanying draw-
ings.

Fig. 1



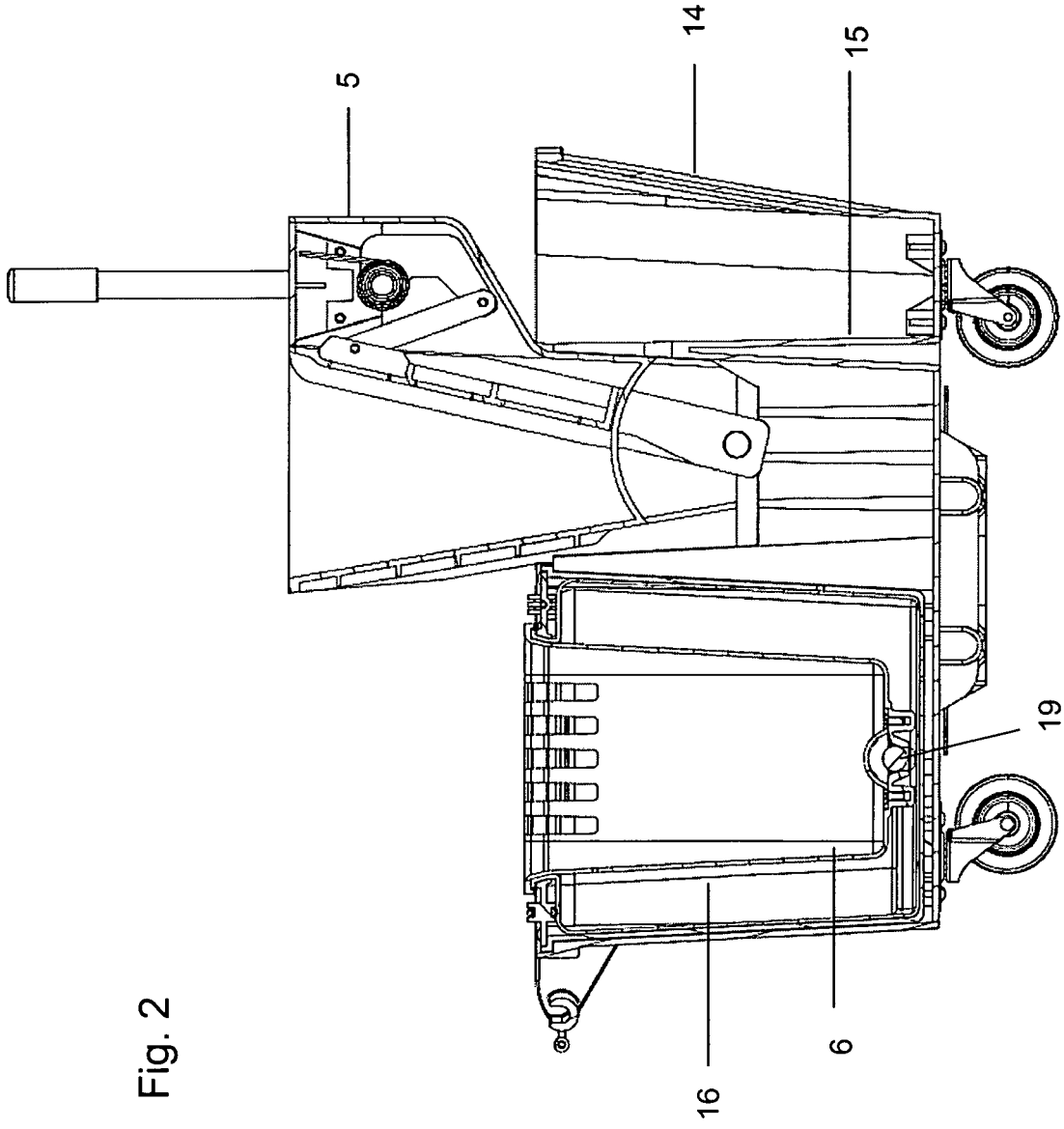


Fig. 2

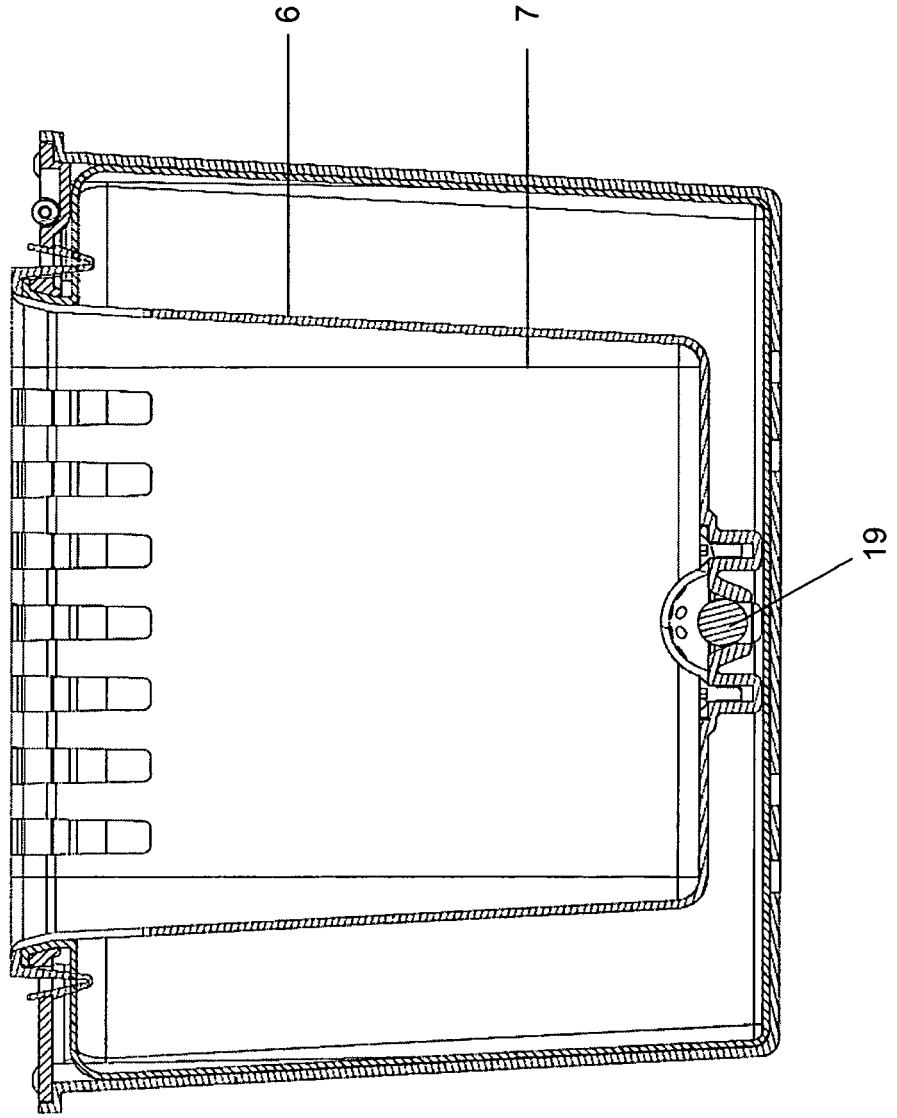


Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 20070022559 A, Dalton **[0002]**
- US 6560815 B, Brennan **[0002]**
- US 20050086760 A, Young **[0003]**
- US 20050076465 A, Rousey **[0004]**
- US 4751763 A, Rose **[0004]**
- US 4713859 A, Smith, Jr **[0005]**
- US 6279195 B, Biggs **[0006]**
- US 5627150 A, Peterson **[0006]**
- US 7437795 B, Kris Bez **[0007] [0009]**