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(71) Applicant: **Koninklijke Zeelandia Groep B.V.**
4301 AA Zierikzee (NL)

(72) Inventors:
• **Van Asten, F.**
4315 AG, Dreischor (NL)

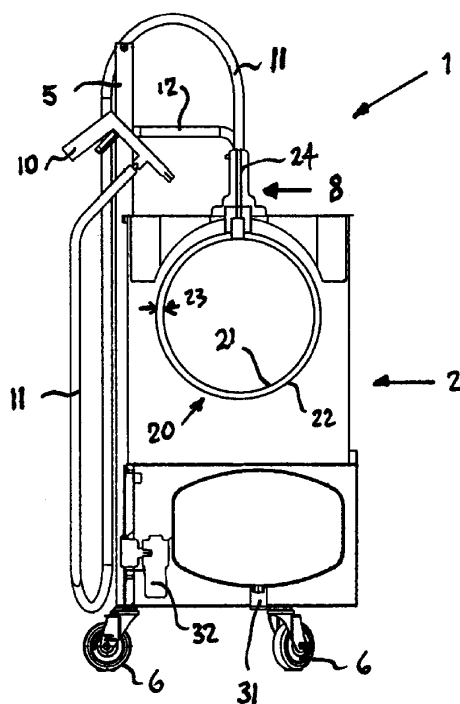
• **Bin, H.W.**
4301 GS, Zierikzee (NL)
• **Blom, M.J.**
4301 DA, Zierikzee (NL)
• **Dijkstra, A.**
6703 JB, Wageningen (NL)
• **Verweij, J.J.H.**
4128 BM, Lexmond (NL)

(74) Representative: **Muttock, Neil John**
Hillgate Patent Services
Parchment House
13 Northburgh Street
London EC1V 0JP (GB)

(54) **A mobile spray apparatus**

(57) A mobile fluid spray apparatus (1) comprising: a wheeled housing (2); a tank (30) disposed within the housing (2) adapted to receive a pressurised gas; a pressure regulator device (32) connected to an outlet of said tank (30) for regulating the output flow of the pressurised gas; a compartment disposed within the housing for removably receiving a fluid container, said fluid container being connectable to the tank outlet via the pressure regulator device; and a hand-held spray gun (10) connectable to said fluid container for the controlled release of fluid from the fluid container when said fluid container is connected to said tank outlet.

Fig.1



Description

[0001] This invention relates generally to a mobile apparatus for spraying a fluid. More specifically, this invention relates to a mobile apparatus for spraying a release agent used in the baking or allied industries.

[0002] A release agent is often required in the baking industry to assist with the undamaged removal of a baking product, e.g. bread, cakes etc., from the baking receptacle that has been used in the baking process. Typically, the release agent is in the form of an oil or oil-in-water emulsion spray.

[0003] Conventionally, there are two types of spray equipment available for the application of a release agent: air-mix systems and airless systems.

Air-mix systems

[0004] Here, the release agent and compressed air are mixed together and forced under pressure through the nozzle of a spray gun.

Airless systems

[0005] A conventional airless system comprises a pressurised barrel or keg containing the release agent. Typically, the release agent will be applied to baking receptacles via a dosing spray gun that is interconnected with the barrel or keg.

[0006] In the known airless systems a problem arises in that there is a relatively short [of the order of minutes] optimum spraying time before the pressure in the barrel or keg falls below a workable level. At this point it is necessary to restore the pressure level within the barrel or keg before spraying can be resumed.

[0007] A further disadvantage with prior art systems is that there is always a residue in the barrel or keg that cannot be dispensed. Also, a problem often arises due to compressor air coming into contact with the release agent within the barrel itself; in this case the barrel will need to be returned to the supplier.

[0008] Another disadvantage with keg-based systems is the weight of the keg itself. Typically, a full keg of liquid release agent will weigh around 45kg. This is delivered to an end-user in a fully laden condition, and must be returned for re-filling after use.

[0009] The present invention arose in attempts to address some or all of the aforementioned problems and disadvantages of the prior art.

[0010] According to an aspect of the present invention there is provided a mobile fluid spray apparatus comprising: a wheeled housing; a tank disposed within the housing adapted to receive a pressurised gas; a pressure regulator device connected to an outlet of said tank for regulating the output flow of the pressurised gas; a compartment disposed within the housing for removably receiving a fluid container, said fluid container being connectable to the tank outlet via the pressure regulator device;

and a hand-held spray gun connectable to said fluid container for the controlled release of fluid from the fluid container when said fluid container is connected to said tank outlet.

[0011] According to an aspect of the present invention there is provided a mobile fluid spray apparatus comprising: a wheeled housing; a tank disposed within the housing adapted to receive a pressurised gas; a pressure regulator device connected to an outlet of said tank for regulating the output flow of the pressurised gas; a removable fluid container connected to the tank outlet via the pressure regulator device; and a hand-held spray gun connected to said fluid container for the controlled release of fluid from the fluid container.

[0012] Preferably, the fluid is a liquid release agent of the type used in the baking industry.

[0013] Preferably, the pressurised gas is air.

[0014] Preferably, the tank is adapted to contain an air pressure of between 5 to 10 bar. More preferably the tank is adapted to contain an air pressure of 8 bar.

[0015] Preferably, the tank includes an inlet valve for receiving pressurised air from an external supply.

[0016] Preferably, the fluid container comprises an outer body fabricated from polyethylene terephthalate (PET) and a flexible inner bladder which expands when filled with the fluid.

[0017] Preferably the outer body is substantially spherical.

[0018] An embodiment of the present invention will now be described, by way of example only, and with reference to the accompanying schematic drawings, in which:

Figure 1 shows a sectional view of the mobile fluid spray apparatus of the present invention;

Figure 2 shows a perspective view of the mobile fluid spray apparatus of Figure 1; and

Figure 3 shows a detailed view of the hose and spray gun sub-assembly of the mobile fluid spray apparatus of the present invention.

[0019] Referring to the Figures, a mobile fluid spray apparatus 1 comprises a wheeled housing 2. The wheeled housing 2 comprises a lower chamber 3, and upper chamber 4, a tubular frame 5, and wheels 6 fixed to both the lower chamber 3 and the tubular frame 5.

[0020] The upper chamber 4 and lower chamber 3 are substantially cylindrical in shape, and the upper chamber 4 includes a sealed top plate 7. Although not shown, the upper chamber 4 also includes access means for enabling installation and removal of a fluid container 20.

[0021] A hose and spray gun sub-assembly 8 (see Figure 3) includes a dispensing head 9 which is locked in place on the sealed top plate 7, a spray gun 10 interconnected to the dispensing head via hose 11. Hose 11 is in fluid communication with an inner bladder 21 of the

fluid container 20. The sub-assembly 8 also includes hose 12 (shown only partially in Figure 3), that interconnects a high-pressure tank 30 with a substantially spherical PET bottle 22 via the tubular frame 5.

[0022] The high-pressure tank 30 is pre-filled with pressurised air via an inlet valve 31, and the outlet pressure to the spherical PET bottle 22 is controlled by a pressure regulator 32. A pressure gauge 33 allows a user to monitor both the tank pressure and the air pressure reaching the fluid container 20.

[0023] In use, the high-pressure tank is filled with pressurised air to substantially 8 bar. A fluid container 20, which has been pre-filled with liquid baking release agent at a remote site, is inserted into the upper chamber 4 through a sealable access panel (not shown). In a full state, the inner bladder 21 is expanded to leave a small air gap 23 between it and the spherical PET bottle 22.

[0024] Relatively low pressure air (3.8 bar) is released into the gap 23 via pressure regulator 32, tubular frame 5, and hose 12. Once the spray gun 10 is actuated, the pressure on the inner bladder 21 forces the liquid baking release agent through an outlet 24, along the hose 11 and out of the nozzle 13 in the form of a spray. The fineness of this spray can be adjusted via the nozzle 13.

[0025] Advantageously, the capacity of the tank 30 and the fact that it is pre-filled with high-pressure air allows for much longer spraying time (typically 1hr) before there is a significant pressure drop. Furthermore, because no air compressor is used during spraying operations there are no umbilical attachments to the apparatus, nor is there any likelihood that compressor air will come into contact with the liquid release agent.

[0026] Another advantage of the present invention is that since the bladder is flexible and can be 'squeezed', the entire product contained therein is dispensed, and there is no waste residue.

[0027] Since the apparatus of the present invention does not require a fixed-point compressed air supply, and since it also does not need to be connected to an electricity mains supply, it is totally mobile and is free to be positioned in any desired position about the bakery or working environment.

[0028] Also, the delivery weight of a full fluid container according to the present invention is typically 20kg. Since the combined weight of an empty bladder and bottle is only around 1kg, the majority of the weight of the delivered container from the supplier represents actual product, and the weight attributable to the container itself is minimal. Furthermore, after use, the empty container (bladder + bottle) can be crushed and recycled in any convenient manner: there is no requirement to return the fluid container since they are not intended to be re-filled, which negates the requirement of an end-user to store empty containers for collection.

Claims

1. A mobile fluid spray apparatus (1) comprising:

5 a wheeled housing (2);
a tank (30) disposed within the housing (2) adapted to receive a pressurised gas;
a pressure regulator device (32) connected to an outlet of said tank (30) for regulating the output flow of the pressurised gas;
10 a compartment disposed within the housing for removably receiving a fluid container, said fluid container being connectable to the tank outlet via the pressure regulator device;
15 and a hand-held spray gun (10) connectable to said fluid container for the controlled release of a fluid from the fluid container when said fluid container is connected to said tank outlet.

20 2. A mobile fluid spray apparatus as claimed in claim 1, wherein the fluid is a liquid release agent of the type used in the baking industry.

25 3. A mobile fluid spray apparatus as claimed in claim 1, wherein the pressurised gas is air.

30 4. A mobile fluid spray apparatus as claimed in claim 3, wherein the tank is adapted to contain an air pressure of between 5 to 10 bar.

35 5. A mobile fluid spray apparatus as claimed in claim 4, wherein the tank is adapted to contain an air pressure of 8 bar.

40 6. A mobile fluid spray apparatus as claimed in claim 3, wherein the tank includes an inlet valve (31) for receiving pressurised air from an external supply.

45 7. A mobile fluid spray apparatus (1) comprising: a wheeled housing (2); a tank (30) disposed within the housing (2) adapted to receive a pressurised gas; a pressure regulator device (32) connected to an outlet of said tank (30) for regulating the output flow of the pressurised gas; a removable fluid container (20) connected to the tank outlet via the pressure regulator device (32); and a hand-held spray gun (10) connected to said fluid container for the controlled release of fluid from the fluid container.

50 8. A mobile fluid spray apparatus as claimed in claim 7, wherein the fluid container comprises an outer body (22) enclosing an inner flexible bladder (21) for receiving and storing the fluid.

55 9. A mobile fluid spray apparatus as claimed in claim 8, wherein the outer body is a substantially spherical bottle fabricated from polyethylene terephthalate (PET).

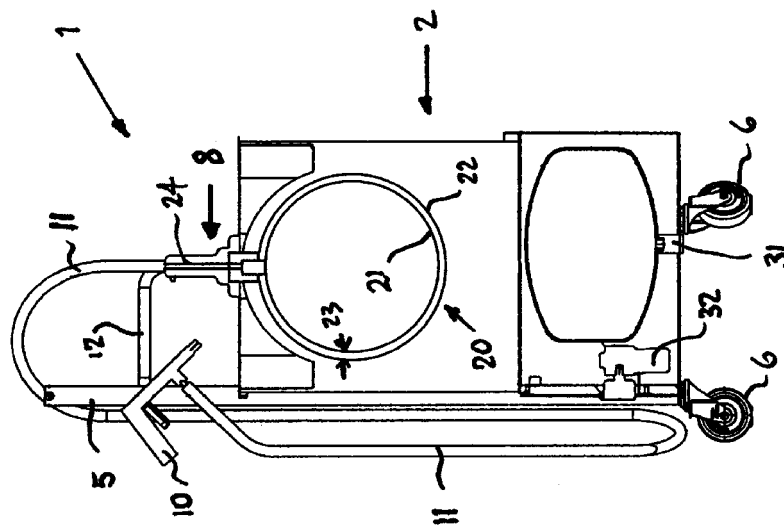


Fig.1

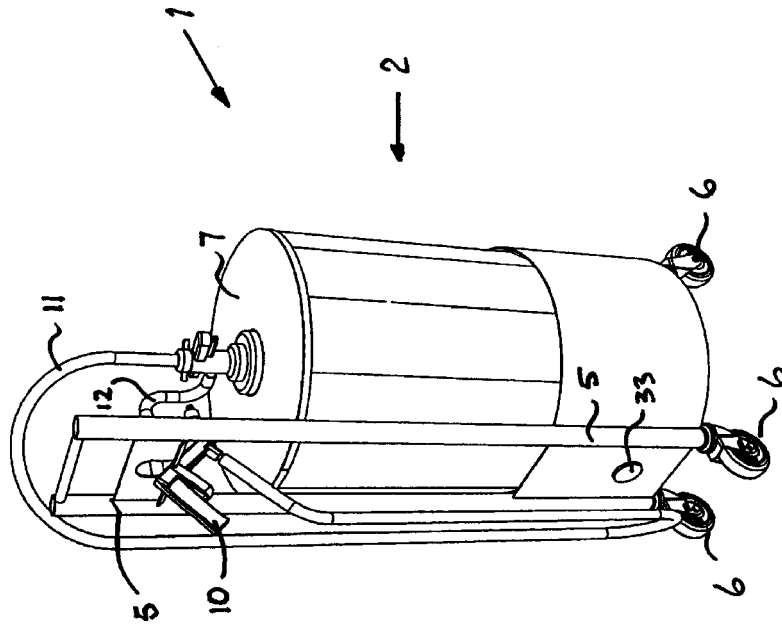
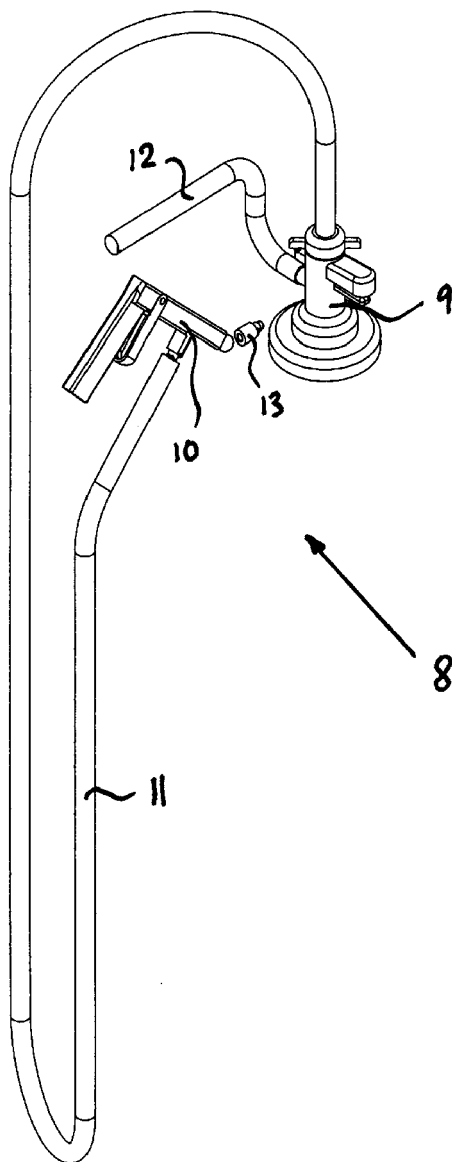


Fig.2

Fig.3





EUROPEAN SEARCH REPORT

Application Number
EP 09 15 1158

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Place of search The Hague		Date of completion of the search 3 July 2009	Examiner Barré, Vincent
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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