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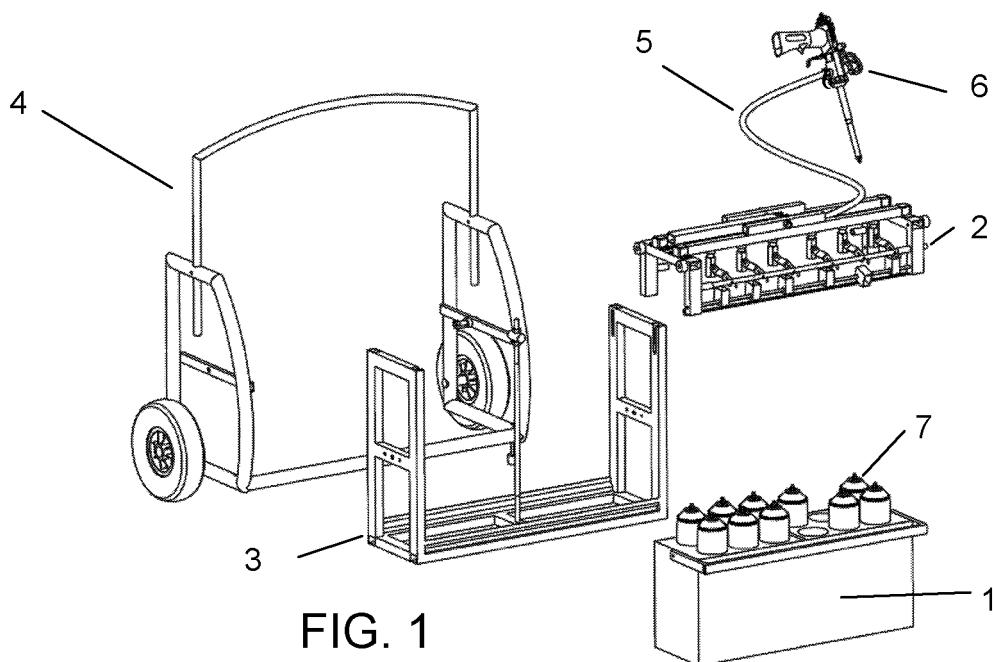
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### (54) Moveable aerosol can collector and foam applicator

(57) A movable and modular aerosol can collector and foam applicator comprises : - a transport unit 1 with handgrip and cylindrical cavities receiving a plurality of aerosol cans positioned with their valves 10 upwards; - a rack or framework 3 to accommodate said unit; - a collector/ connector 2 system with ball valves 21 connecting each can 7 and covering said rack; - one chassis 4 with handgrip and wheels for receiving said rack 2; - a deliv-

ering system comprising preferably a flexible hose 5 attached to the collector 2 and connecting a foam gun 6. The assembly comprises an actuating means 22 to open and close simultaneously a plurality of the ball valves 21. There is also a safety system whereby the absence of a can 7 in the unit 1 is detected and the ball valves 21 are automatically locked so that no foam can inadvertently flows out of the remaining cans.



**Description**

**[0001]** The invention relates to a new modular and portable dispensing system especially adapted for one component polyurethane foam in aerosol cans. The system is a moveable aerosol can collector and foam applicator hereinafter sometimes called MACC.

**[0002]** For various applications, several cans are often conditioned and stored in a moveable rack.

**[0003]** For example six or twelve cans of one component foam (OCF) may be conditioned and stored in a device according to the invention.

**[0004]** The device can be assembled with additional features, such as an additional means to spray foam beads for roving applications, so that it becomes a moveable bead applicator (MBA).

**[0005]** Big volume users of one component foam use at present vessels of several kg capacity, for example a 10 kg vessel. This requires a combination of a metal vessel, a ball valve, a flexible hose and a One Component Foam-gun (OCF-gun).

**[0006]** In the future, due to two environmental restrictions, this application will probably be prohibited for the end user. First, by law some blowing agents will be restricted. Second, the metal vessel is difficult to recycle and will be excluded or disfavoured by law.

**[0007]** The present invention provides a tool for dispensing multiple aerosol cans which can be used to replace the use of larger vessels, more particularly of PU foams.

**Detailed description of the invention**

**[0008]** The invention is illustrated in a non-limitative way with reference to the annexed drawings and further discussed herebelow, the scope of the invention being defined in the claims.

**[0009]** Referring to Figs. 1 and 2, the proposed system according to one embodiment of the invention, contains a transport unit 1 for storing the cans 7, one can connector system 2 with a plurality of ball valves, for example twelve, with an associated security system, one central framework 3 in which the connector system 2 is slideable, one chassis 4 with handgrip and wheels, a flexible hose 5 and a NBS foam gun 6. The various elements are advantageously components of a mainly tubular structure.

**[0010]** The system of the invention is used to transport aerosol cans from delivery place to the application site. The transport unit 1 contains preferably a foam core (for isolation purpose) with thin plated aluminium around it. The transport unit also includes handgrip 8 made of aluminium profile. All these features make the transport unit 1 very light and easy to carry.

**[0011]** This unit 1 according to the invention makes it unnecessary to move or carry the complete system when the cans need to be changed. This is a major advantage in respect of the

prior art.

**[0012]** The cans are stored in the unit 1 with their valves 10 upwards. The unit is designed so that it may accommodate a central vertical rod (30).

**[0013]** After the transport unit 1 is filled with foam cans, the professional user carries the unit to the movable assembly in accordance with the invention. The user slides the transport unit 1 into the frame 3. At this stage the transport unit 1 rests in the aluminium frame 3.

**[0014]** The next step is bringing the collector-connector 2 with associated ball valves 21 into the aluminium frame. According to one aspect of the invention, the collector 2 slides in the aluminium frame and is guided by plastic bearings.

**[0015]** The collector 2 with ball valves 21 rests on the PU-valves 10. To open the PU-valves and to lock the collector with ball valves in the aluminium frame, the lever 20 is pushed down.

**[0016]** By pushing down the lever 20, all the PU-valves are opened and the security detection system is activated. The lever 20 is associated with a central vertical stand or rod 30 provided in the frame 3. At the upper end of the rod a fulcrum member 31 is provided on which the base of the lever 20 will act and cooperate to push down the connector-collector 2 and consecutively open the can valves 10.

**[0017]** In operation, the next step is to open the ball valves 21. In the example, there are 12 ball valves. Opening the ball valves separately is tedious and takes a long time. In the proposed system, to decrease the preparation time all ball valves are coupled with a central axis 22. When sliding the axis sideways, the ball valves are simultaneously opened.

**[0018]** The 12 cans are positioned in 2 rows of 6 cans. With this configuration the professional user can choose to open 6 ball valves by pulling one axis or to open all 12 ball valves by pulling both axis 22.

**[0019]** When the axis 22 is pulled to the ON position, that is to say to the right in Figs. 7a and 7b, the right end of it is received into an opening in the frame part 80 of the box-holder 3 (see FIG. 8, which is partly cross sectional view). This means that the user cannot remove the collector-connector 2 when the ball valves are open unless the axis 22 is slid in the OFF position, where the ball valves are closed.

**[0020]** According to another aspect of the invention, a security system is provided to check if all cans are present.

**[0021]** Indeed if the user forgets to put one can in the can holder and the ball valves are opened, then the foam will spray out of that ball valve where the can is missing. As a result the foam of the remaining 5 other cans will spray out of the ball valve where the can is missing.

**[0022]** The safety system detects if one can is missing. In the illustrated example, because there are 2 times 6 cans on a row, there are also 2 sliders or axis 22 and therefore also 2 safety systems are needed. For each

slider the rule applies: only when the 6 cans are present can the slider be actuated in the ON position. This leads to the opening of the 6 ball valves.

**[0023]** For achieving this safety system, each can 7 is associated with its own safety members in the form of lids 24, 25 which can independently pivot on a common axis 23.

**[0024]** In fig. 10, which is a partly cut-away view, safety lid member 24 is not activated because the corresponding can is missing. Safety lid 25 is activated because the can is present. Indeed when the collector 2 slides down, at the preparation steps, the corresponding can pushes the safety lid, so the lid will pivot about the axis 23.

**[0025]** Safety lid 25 is now pushed away because the can is present. To open the ball valves, the slider 22 must be pulled to the right. Because safety lid 25 is in activated position, the slider extension 13 could pass. Because safety lid 24 is not activated, the corresponding extension 26 of the slider 22 will contact the lid 24 and be stopped.

**[0026]** In normal situation all cans will be present, so the ball valves can be opened simultaneously without any problems.

**[0027]** The next step in preparing the MACC for use is shaking the cans. This can be easily done by rotating the central frame as illustrated in figs. 12a and 12b.

**[0028]** During transport of the MACC and rotating of the central frame, the hose must preferably be wound up on the backside of the central framework.

**[0029]** When ball valves are cleaned with PU-cleaner (MACC is in the use position without cans), a cleaning collection box may be slid into the central frame which can be placed under the ball valves to collect acetone and PU foam rests.

**[0030]** For flat-roving applications, multiple flexible plastic hoses must be connected with the collector to spray beads of PU-foam. This application must be an add-on solution which can be installed on the MACC. Therefore, in this embodiment, the wheel base and the distance between the plastic hoses must be adjustable in width.

**[0031]** It will be understood that most features described above may be applied independently and that multiple combinations can be elaborated on this basis, while remaining within the scope of the present invention.

## Claims

**1.** A movable and modular aerosol can collector and foam applicator comprising :

- a unit (1) receiving a plurality of aerosol cans positioned with their valves (10) upwards
- a rack or central framework (3) to accommodate said unit
- a collector-connector (2) system with ball valves (21) connecting each can (7) and covering said rack

- one chassis (4) with handgrip and wheels for receiving said rack (2)  
- a delivering system comprising preferably a flexible hose (5) attached to the collector (2) and connecting a foam gun (6).

**2.** The can collector of claim 1 wherein the unit (1) is a container with cylindrical cavities (17), each receiving a can (7).

**3.** The can collector of claim 2 wherein the unit (1) contains a foam core.

**4.** The can collector according to any of the preceding claims wherein the unit is a transport unit (1) with a handgrip (8).

**5.** The can collector according to any of the preceding claims wherein the connector (2) may be pushed and maintained on the can valves (10) by actuating a lever (20).

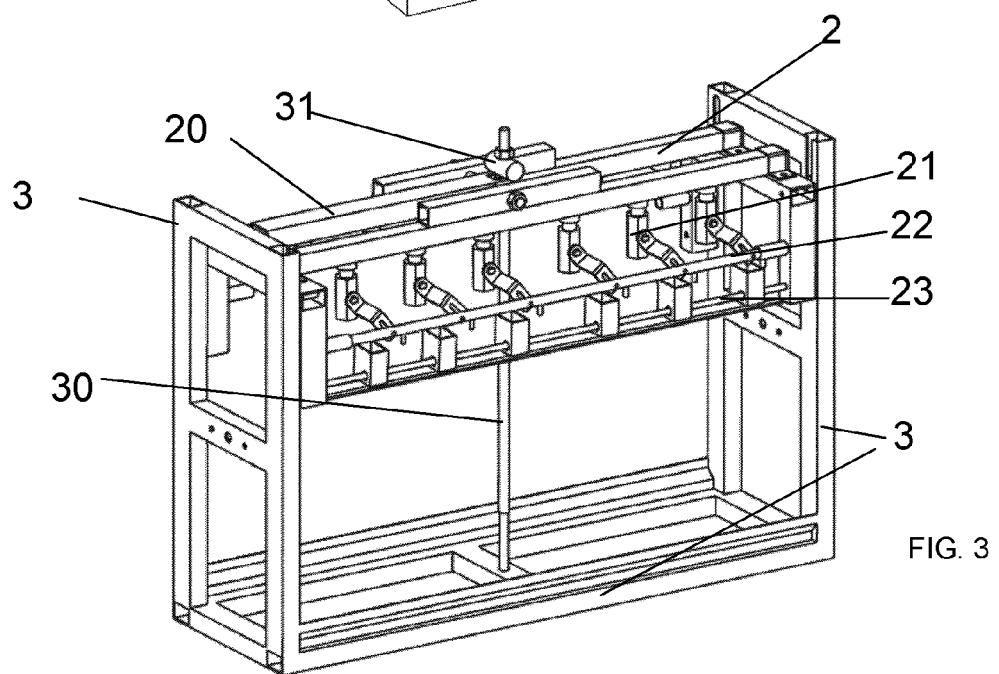
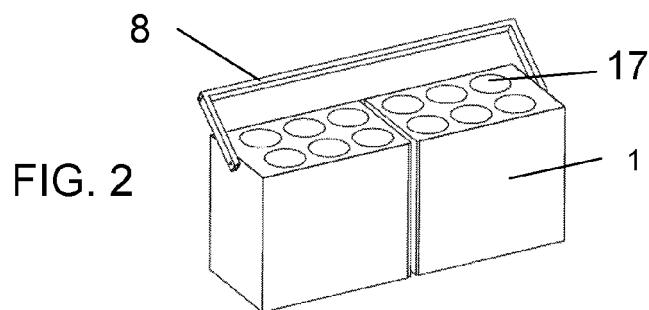
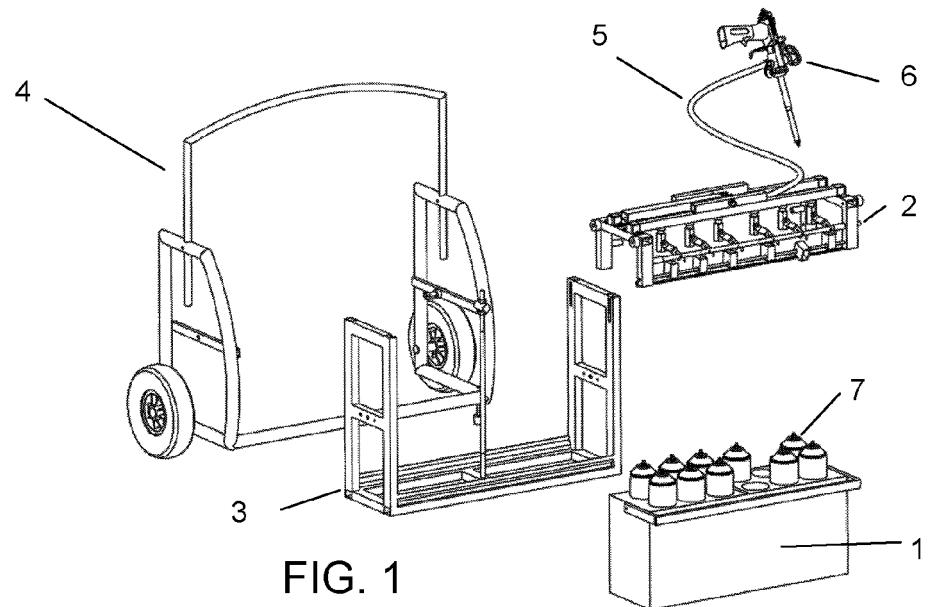
**6.** The can collector according to any of the preceding claims wherein the connector (2) comprise an actuating means (22) to open and close simultaneously a plurality of the ball valves (21).

**7.** The can collector according to any of the preceding claims wherein the collector-connector (2) comprises a safety system whereby the absence of a can (7) in the unit (1) is detected and the ball valves (21) are automatically locked so that no foam can inadvertently flows out of the remaining cans.

**8.** The can collector according to any of the preceding claims wherein the rack (3) is provided with a central vertical rod (30) supporting a fulcrum member (31) for the lever (20).

**9.** The can collector according to any of the preceding claims wherein the rack (3) is pivotally supported in the chassis (4), preferably associated to a locking system.

**10.** The can collector according to any of the preceding claims wherein the assembly is mainly made of a tubular structure.



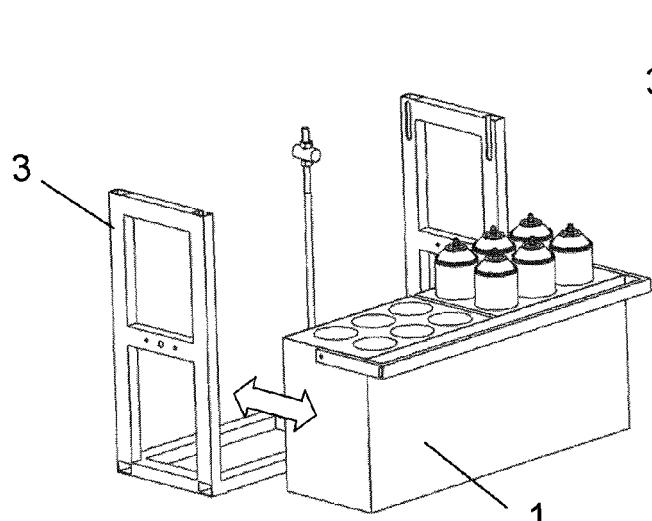


FIG. 4a

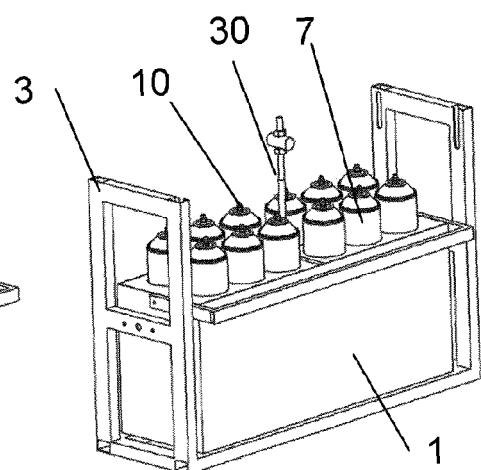


FIG. 4b

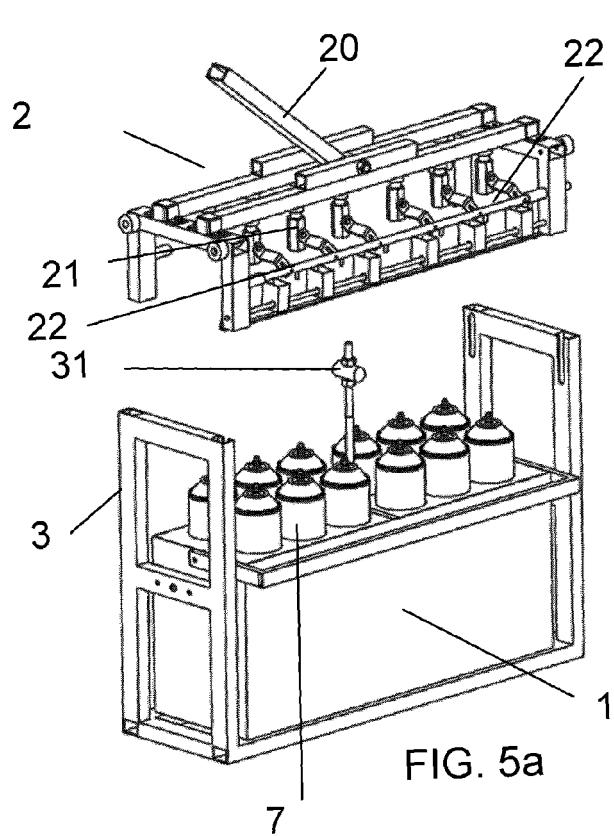


FIG. 5a

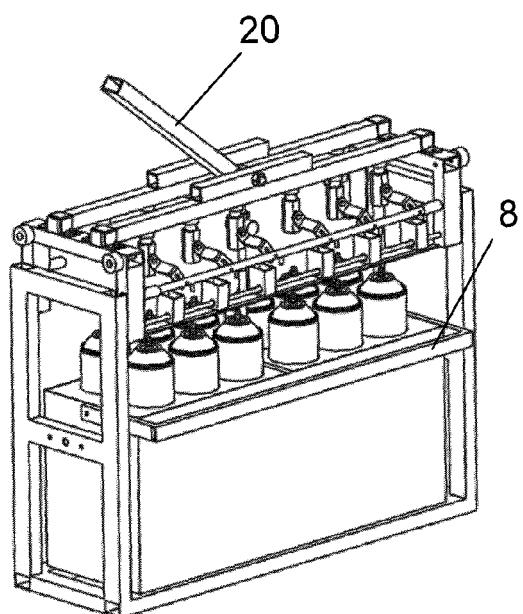


FIG. 5b

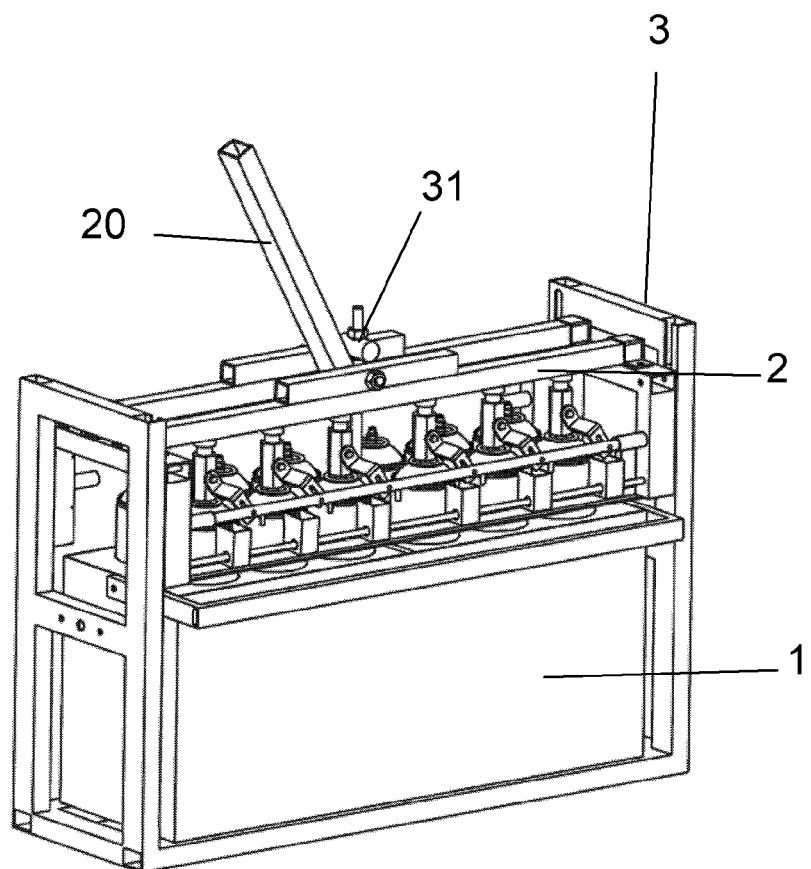
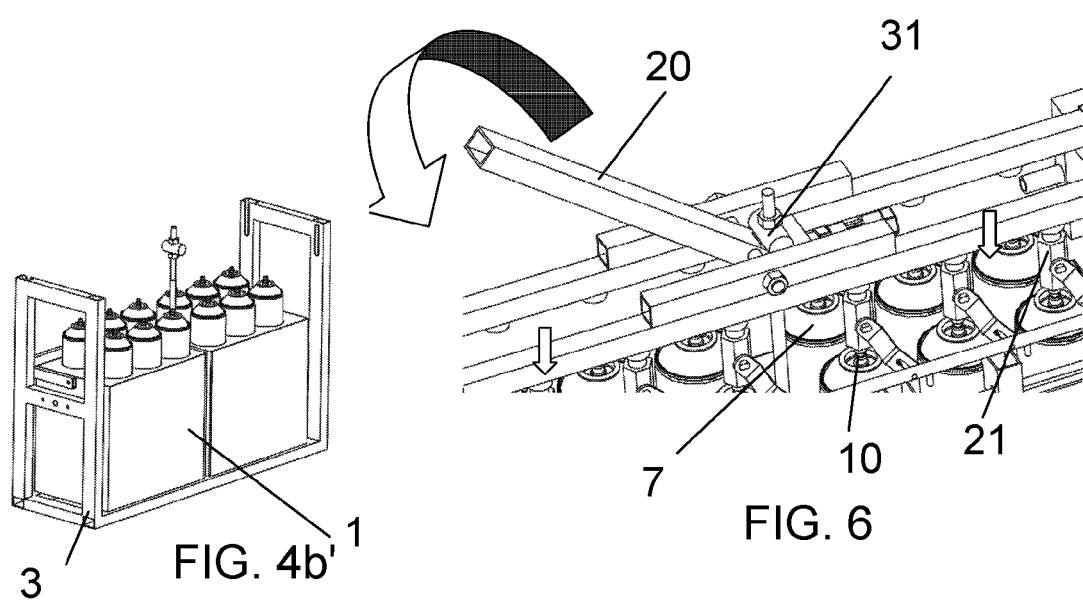


FIG. 5c



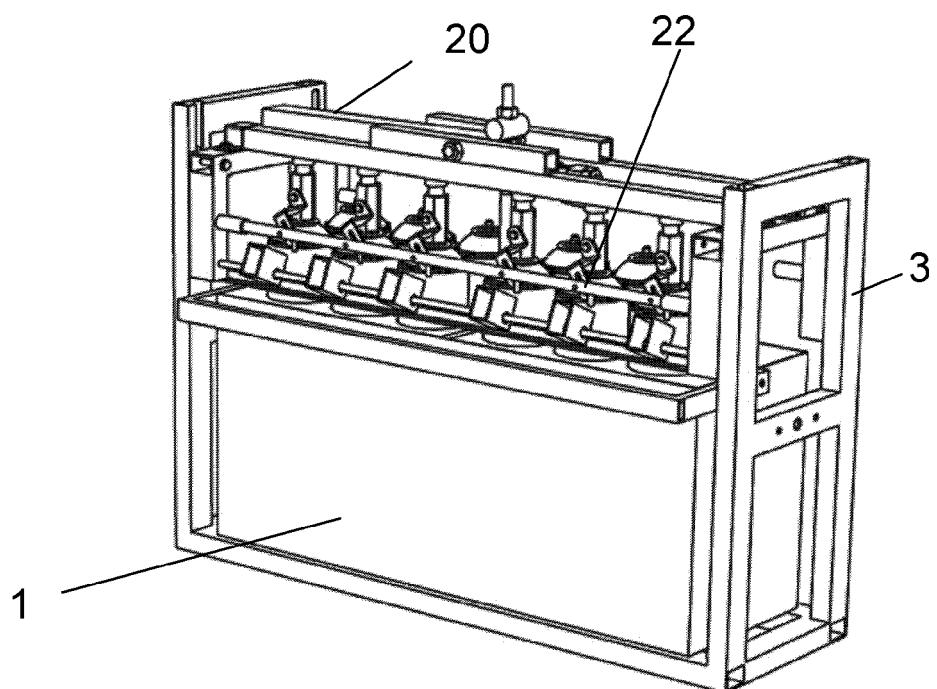


FIG. 5d

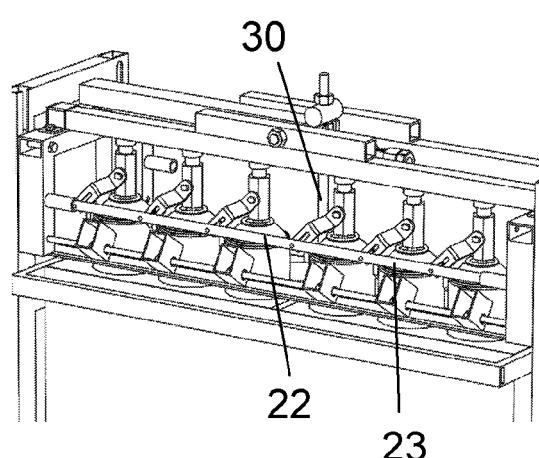


FIG. 7a

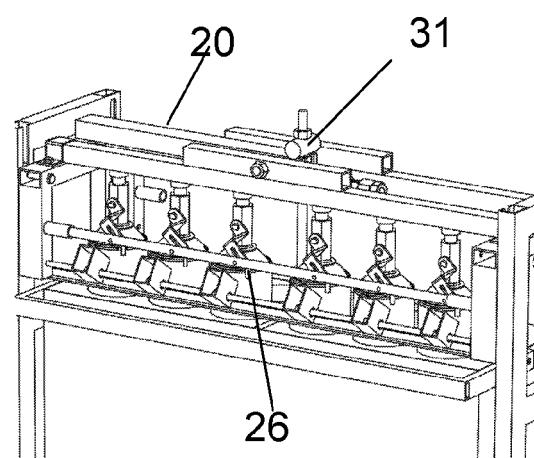
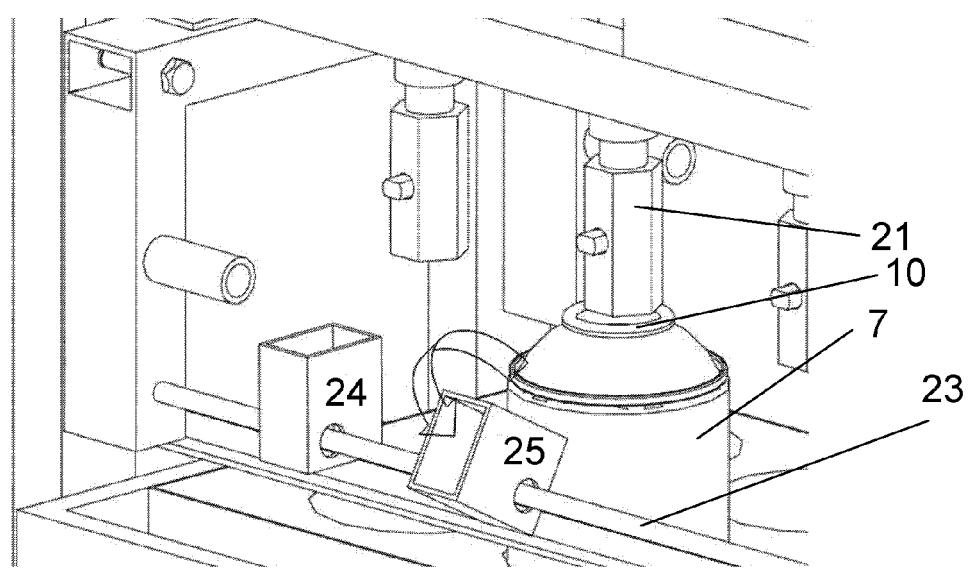
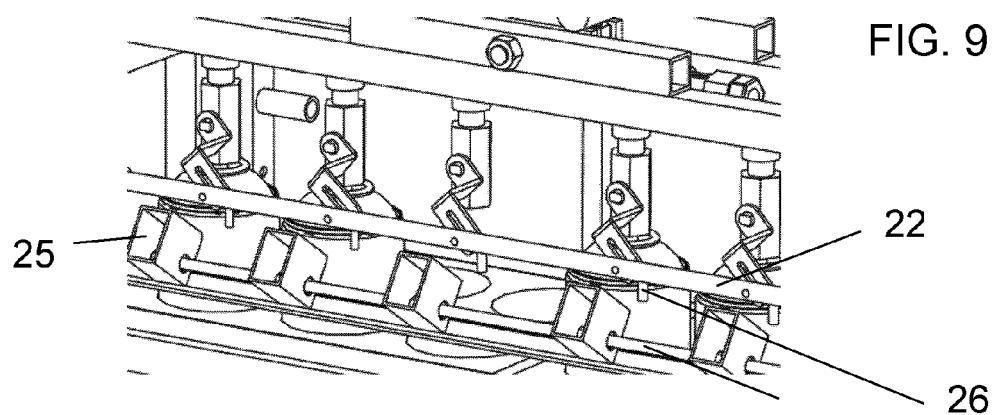
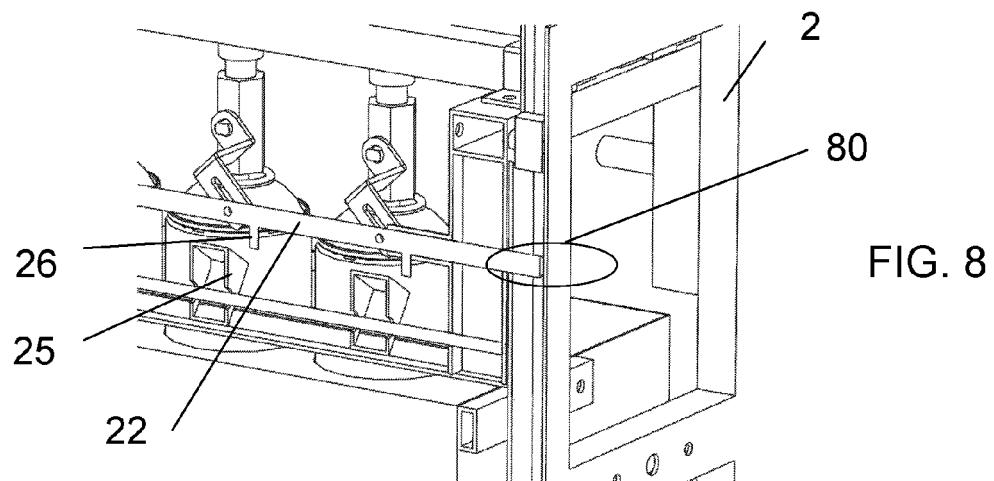


FIG. 7b



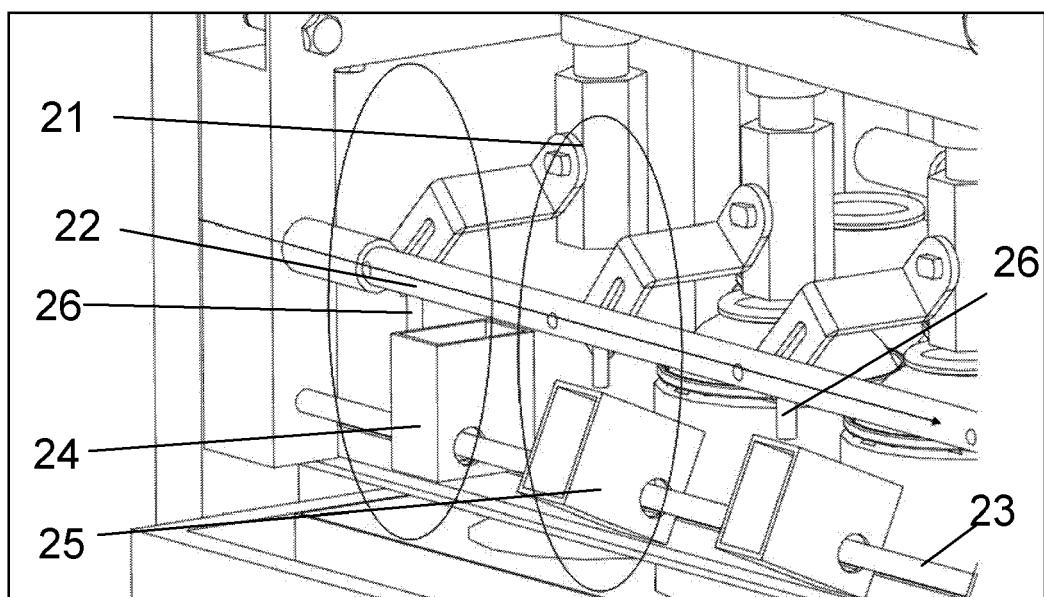


FIG. 11

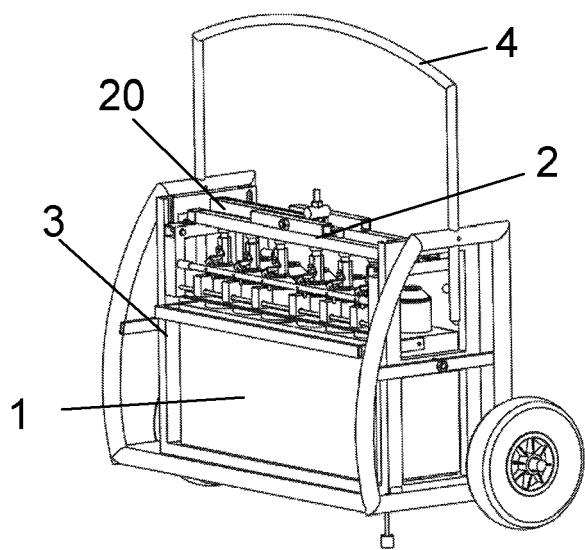


FIG. 12a

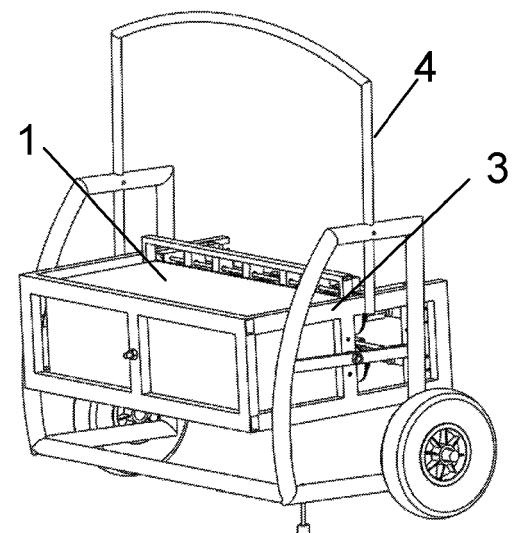


FIG. 12b

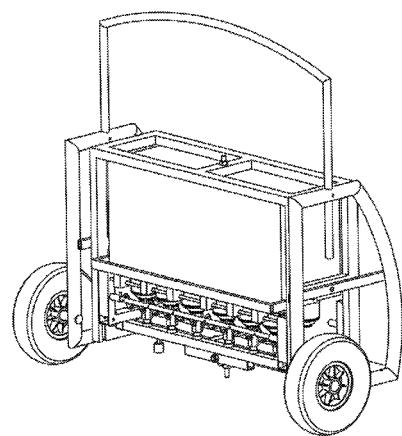


FIG. 12c

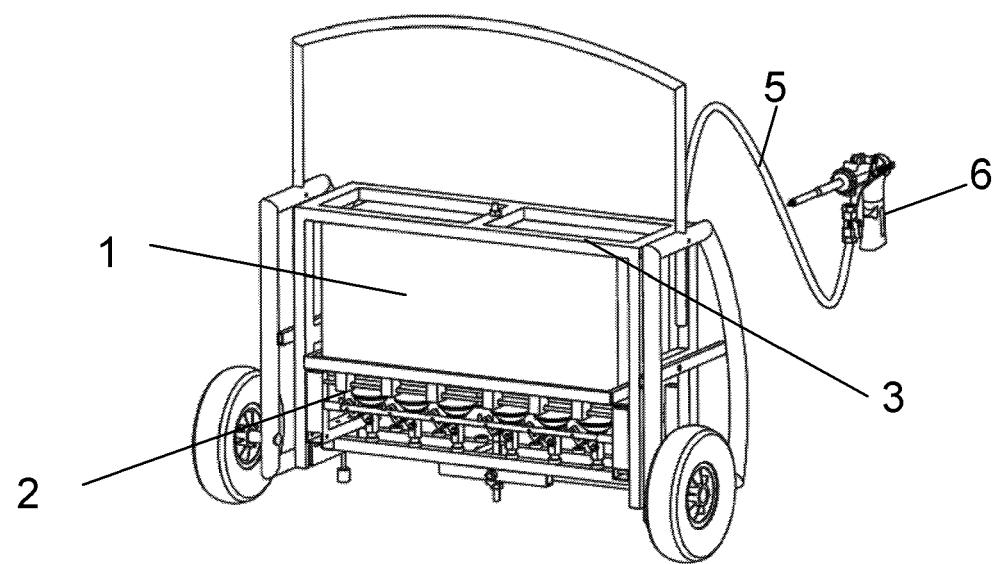


FIG. 12d



## EUROPEAN SEARCH REPORT

Application Number  
EP 08 10 4587

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 10 4587

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
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09-10-2008

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