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(54) **"Device for connecting a bag containing a liquid product onto a machine"**

(57) Device for connecting a bag containing a liquid product onto a machine, whereby this device mainly

consists of a flexible hose (6) and a coupling (7), characterised in that the coupling (7) comprises a suction pipe (14), an insert element (12) and a membrane (13).

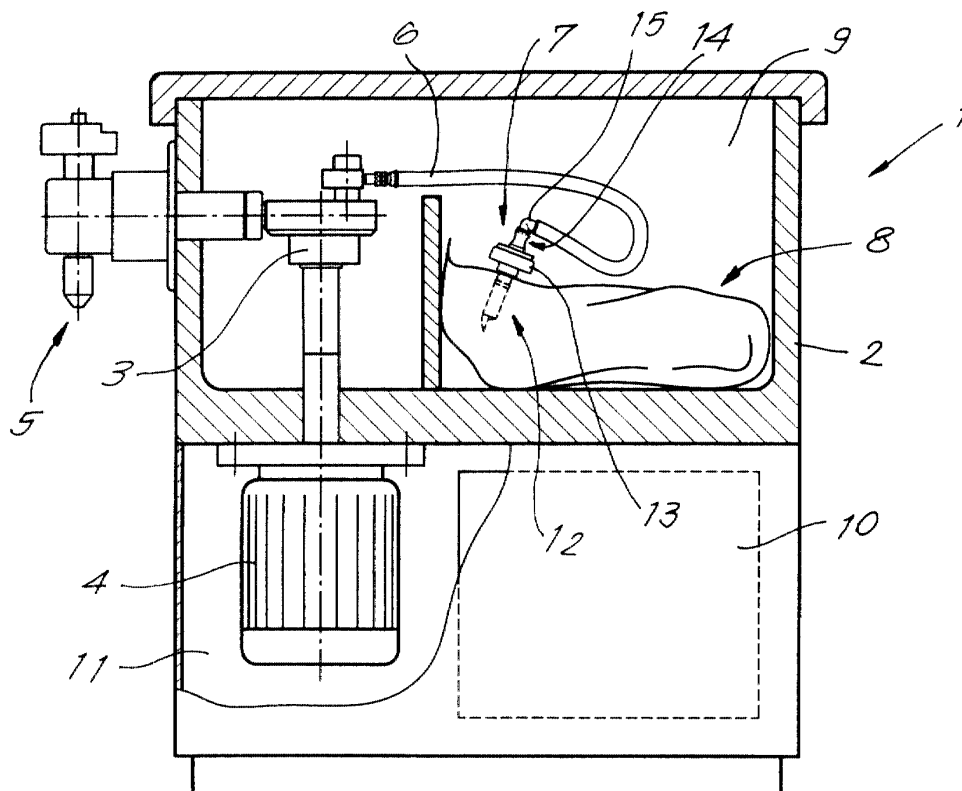


Fig. 1

Description

[0001] The present invention concerns a device for connecting a bag containing a liquid product onto a machine, in particular for connecting a bag containing a liquid dairy product, a liquid vegetable product, or a combination of a dairy product with a vegetable product, onto a machine, such as a cream whipping machine, a soft-ice machine or such.

[0002] The invention also concerns a bag for such a liquid product which can be used in conjunction with the above-mentioned device.

[0003] In a specific case, the machine will consist of a cream whipping machine, whereby the above-mentioned liquid product is liquid cream.

[0004] It is known not to pour liquid cream directly in the cooled room of a cream whipping machine, but to fill flexible containers in the form of bags with liquid cream in the dairy farm, after which such a bag can be placed in the cooled room of the cream whipping machine and connected onto the pump of the cream whipping machine. This offers great hygienic advantages, since the liquid cream has no direct contact with the walls of the cooled room in any way whatsoever.

[0005] The use of such flexible bags is already known, whereby these bags are always provided with a connecting piece made of hard material onto which can be connected a hose by means of a suitable coupling, which is or can be connected in turn to the suction pump of the machine concerned.

[0006] As the container consequently consists of different materials, namely a flexible part and a non-flexible part, its manufacturing is expensive.

[0007] Moreover, a bag will have to be made for every type of cream whipping machine which is equipped with a suitable connecting piece in order to make it possible to connect it onto the suction line of the pump.

[0008] It is clear that, with the above-mentioned devices, a specific connection will have to be provided which can be coupled in a suitable manner to the pump on the one hand and to the bag concerned with liquid cream on the other hand.

[0009] Also, the present invention aims a device for connecting a bag containing a liquid product onto a machine which excludes the above-mentioned and other disadvantages of the known devices and the accompanying flexible bags.

[0010] To this aim, the invention concerns a device for connecting a bag containing a liquid product onto a machine, which mainly consists of a flexible hose and a coupling which at least comprises a suction pipe, an insert element and a membrane.

[0011] Further, the invention concerns a flexible bag which can be used with the above-mentioned device and which consists of an actual bag which, after it has been filled, is closed on the open end.

[0012] In order to better explain the characteristics of the invention, the following preferred embodiment of a

device for connecting a bag containing a liquid product onto a machine, and a bag used hereby, are described as an example only without being limitative in any way, with reference to the accompanying drawings, in which:

figure 1 schematically represents a cream whipping machine, provided with a device and a bag for a liquid product according to the invention;

figure 2 represents a device according to the invention when disassembled;

figure 3 represents a section according to line III-III in figure 2;

figure 4 represents a view, similar to that in figure 3, but when mounted;

figure 5 represents a bag for a liquid product according to the invention;

figures 6, 7 and 8 represent different stages of the connection of a bag containing liquid cream onto a cream whipping machine by means of a device according to the invention;

figures 9 and 10 schematically represent two variants of figure 1.

[0013] As represented in figure 1, a cream whipping machine 1 mainly consists of a housing 2 in which is provided a pump 3, driven by a motor 4, whereby the output of the pump 3 is connected to a draining device 5, whereas the suction opening thereof is connected to a flexible bag 8 containing liquid cream by means of a flexible hose 6 and a coupling 7.

[0014] The cream whipping machine 1 is mainly divided in a cooled room 9 which is connected to a cooler 10 and a room 11, in which said cooler 10 is provided together with the motor 4.

[0015] As represented in figure 2, a device according to the invention mainly consists of the above-mentioned hose 6 and the coupling 7, whereby the latter is formed of an insert element 12, a membrane 13 and a suction pipe 14, with which a connection 15 can co-operate.

[0016] The insert element 12 consists of a cylindrical element 16, for example made of hard plastic, of which one far end has a sharp point 17, whereas the other far end consists of a collar 18, whereby a groove 19 is provided in the element 16 near the collar 18.

[0017] The insert element 12 is further provided with a bore over its entire length, which starts from the centre of the above-mentioned collar 18 and opens next to the above-mentioned sharp point 17.

[0018] The membrane 13 has the shape of a cylindrical cap, consisting of an upper wall 20 with a recessed part 21, and a cylindrical wall 22 whose free edge has an inwardly directed collar 23, such that the membrane 13 fits over the collar 18 of the insert element 12.

[0019] The membrane 13 is made of flexible material, such as rubber, plastic, for example silicone, or such.

[0020] In the centre of the above-mentioned recessed part 21, the membrane 13 can be made weaker or provided with prepared tearing lines or such.

[0021] The suction pipe 14 consists of an actual tubular body 24 with an outer diameter which is equal to the diameter of the bore in the insert element 12, whereby the body 24 has a sharp edge 25 on one far end, and the other far end is successively provided with a collar 26 and a part 27 made as a finger haft, in which is provided a bore 28.

[0022] The length of the body 24 will preferably be smaller than the entire length of the insert element 12, minus the length of the point 17, as becomes clear from figure 4.

[0023] The suction pipe 14 is preferably made of metal, for example stainless steel.

[0024] The device according to the invention is further completed by the hose 6 which is provided with the connection 15 on the one hand, which can co-operate with the bore 28 in the suction pipe 14 in a suitable manner, and which is provided with a connection 29 designed to co-operate with the suction side of the pump 3 on the other hand.

[0025] Finally, the bag for the liquid product 8 is made of a flexible, yet strong plastic which in the given embodiment consists of an actual bag 8 which, after it has been filled with liquid cream in the dairy farm, is sealed on the open end, for example by means of heat-sealing.

[0026] Naturally, such a bag 8 can also be formed starting with tubular material which is heat-sealed on one far end, and, after the filling of the bag 8 with liquid cream, by heat-sealing also the other far end of said bag 8.

[0027] Preferably, the bag 8 will be provided with a weakened part 30 in a specific place which may consist of a local thinning of the material.

[0028] The use of the device according to the invention is very simple and as follows.

[0029] A bag 8, as represented in figure 5, which is filled with cream in the dairy farm and which is hermetically sealed, is placed in the cooled room 9 of a cream whipping machine 1, after which the insert element 12 is provided through the wall of the bag 8, by means of the sharp point 17, whereby a membrane 13 is preferably provided beforehand on this insert element 12.

[0030] If the bag 8 is provided with a weakened part 30, it is placed with this part 30 up in the cooled room 9, and it is pricked through in this weakened part 30.

[0031] The shape and dimensions of the insert element 12 are such that, when the wall of the bag 8 has been pricked through, no cream can flow away through the created opening.

[0032] The groove 19 which is provided with the cylindrical element 16 near the collar 18 makes sure that the insert element 12 cannot slide back from the bag 8 due the pressure prevailing therein, since the wall of the bag 8 hooks in the above-mentioned groove 19.

[0033] Moreover, the membrane 13 makes sure that the cream cannot flow away from the bag 8 via the bore.

[0034] Next, the suction pipe 14 will be provided in the bore of the insert element 12 by pushing the sharp edge

25 of the suction pipe 14 through the recessed part 21 of the membrane 13, whereby the membrane 13 envelops the body 24 of the suction pipe 14 such that a suitable sealing is automatically obtained.

[0035] As the length of the tubular body 24 of the suction pipe 14 is shorter than the cylindrical element 16 of the insert element 12, we prevent the bag 8 from being sucked against the edge 25 of said suction pipe 14 while the pump 3 is working, which could result in a bad functioning of the cream whipping machine 1.

[0036] The above-mentioned suction pipe 14 is then connected to the suction side of the pump 3 by means of the flexible hose 6, which is provided with the connections 15 and 29, such that when the motor 4 drives the pump 3, the latter will suck in the liquid cream from the bag 8 and supply it to the draining device 5.

[0037] The above-described successive stages of the application of a bag 8 in a cream whipping machine 1 are represented in figures 6 to 8.

[0038] Since uniform bags 8 are preferably used for all types of cream whipping machines 1, for example with a content of one and a half to two litres, such a bag 8 will be a whole lot smaller than the cooled room 9 of large cream whipping machines 1, as is represented for example in figures 9 and 10.

[0039] In order to prevent the bag 8 from lying flat on the bottom of the cooled room 9 in this case, it can be provided in a container 31 which is specially designed to this end.

[0040] This container 31 consists of an actual recipient 32 on the one hand, a lid 33 to close off the recipient 32 on the other hand, whereby the latter is mainly formed of side walls 34 and a bottom wall 35 provided with reinforcements 36.

[0041] In one of the above-mentioned side walls 34 is provided an opening 37, whereas also the lid 33 is provided with a similar opening 39 in its upper wall 38.

[0042] The recipient 32 is made narrower towards the bottom, whereas the lower part of the side walls 34 has an additional dip 40.

[0043] The use of such a container 31 is also very simple and as follows.

[0044] A full, sealed bag 8 containing liquid cream is provided in the container 31.

[0045] Given the dimensions of the cooled room 9, the container 31 can be placed upright, or it will be placed on one of its side walls 34.

[0046] If the container 31 can be placed upright, the insert element 12 is pricked through the opening 39 in the lid 33 and then through the wall of the bag 8, after which the suction pipe 14 is inserted and the insert element 12 is connected to the suction side of the pump 3 in the same manner as described above.

[0047] However, if the cooled room 9 is too low to place the container 31 upright, it is placed on a side wall 34, and the insert element 12 is provided through the wall of the bag 8 via the opening 37 in the side wall 34.

[0048] It is clear that in the above-mentioned manner

is obtained a device which can be used in practically any cream whipping machine 1.

[0049] Naturally, it is not excluded, as mentioned above, to use a device according to the invention in another machine than a cream whipping machine, for example a machine for processing another dairy product, a liquid vegetable product, or a combination of a dairy product and a vegetable product, such as a soft-ice machine or such.

[0050] The invention is by no means limited to the above-described embodiments represented in the accompanying drawings; on the contrary, such a device and a bag can be made in all sorts of shapes and dimensions while still remaining within the scope of the invention.

Claims

1. Device for connecting a bag containing a liquid product onto a machine, whereby this device mainly consists of a flexible hose (6) and a coupling (7), **characterised in that** the coupling (7) comprises a suction pipe (14), an insert element (12) and a membrane (13). 20
2. Device according to claim 1, **characterised in that** the insert element (12) is formed of a cylindrical element (16) of which one far end has a sharp point (17), whereas the other far end consists of a collar (18). 30
3. Device according to claim 2, **characterised in that** the insert element (12) is provided with a bore over its entire length, which starts from the centre of the above-mentioned collar (18) and opens next to the above-mentioned sharp point (17). 35
4. Device according to any of claims 1, 2 or 3, **characterised in that** the cylindrical element (16) of the insert element (12) is provided with a groove (19). 40
5. Device according to claim 2, **characterised in that** the cylindrical element (16) is made of a hard plastic. 45
6. Device according to claim 1, **characterised in that** the membrane (13) has the shape of a cylindrical cap, consisting of an upper wall (20) having a recessed part (21) and a cylindrical wall (22) whose free edge has an inwardly directed collar (23). 50
7. Device according to claims 2 and 6, **characterised in that** the membrane (13) fits over the collar (18) of the insert element (12). 55
8. Device according to claim 1, 6 or 7, **characterised in that** the membrane (13) is made of a flexible ma-

terial such as rubber, plastic, for example silicone, or such.

9. Device according to claims 1 and 3, **characterised in that** the suction pipe (14) consists of an actual tubular body (24) with an outer diameter which is equal to the diameter of the bore in the insert element (12), whereby this body (24) has a sharp edge (25) on one far end, and the other far end is successively provided with a collar (26) and a part (27) made as a finger haft, in which is provided a bore (28). 5
10. Device according to claim 9, **characterised in that** the length of the body (24) is smaller than the entire length of the insert element (12), minus the length of the point (17). 10
11. Device according to any of claims 1, 9 or 10, **characterised in that** the suction pipe (14) is made of stainless steel. 15
12. Device according to claim 1, **characterised in that** the flexible hose (6) is provided with connections (15-29) which can co-operate with the suction pipe (14), the suction side of the pump (3) respectively. 25

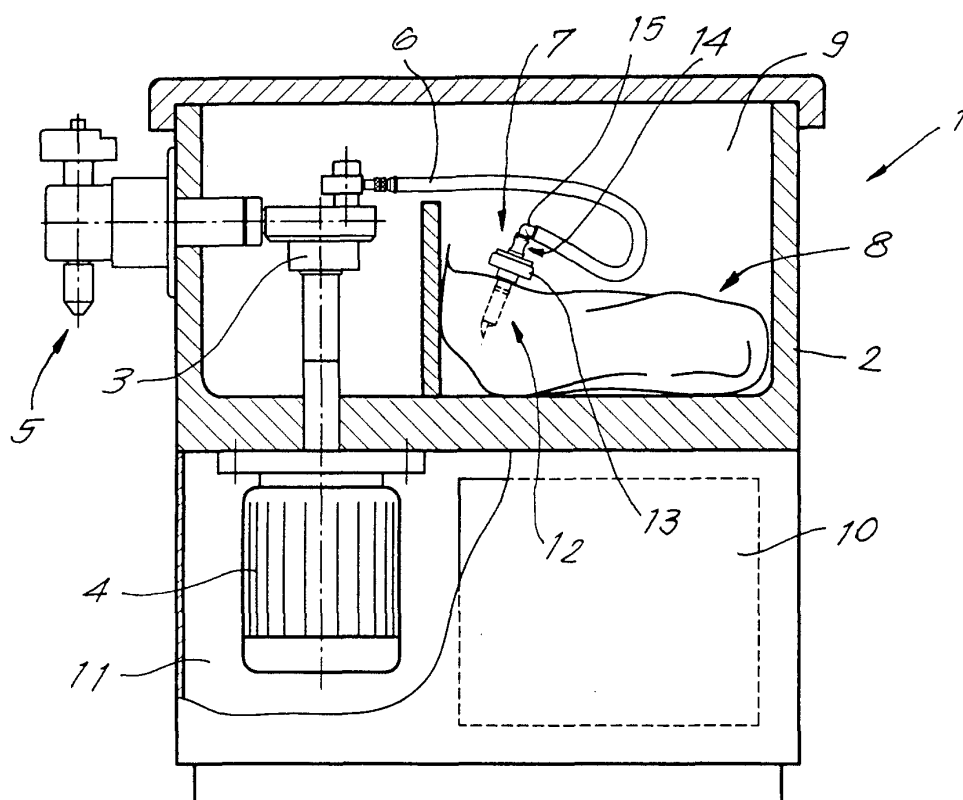


Fig. 1

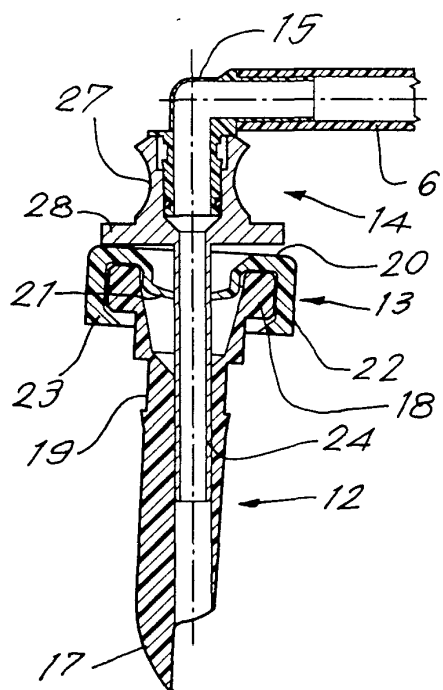


Fig. 4

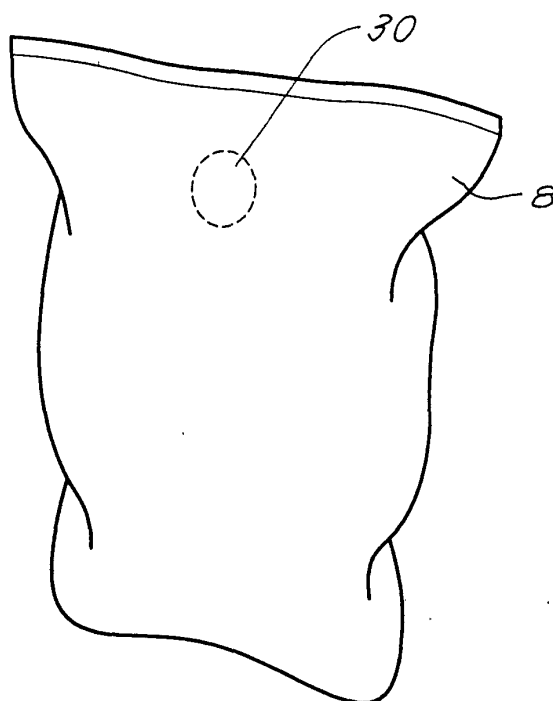


Fig.5

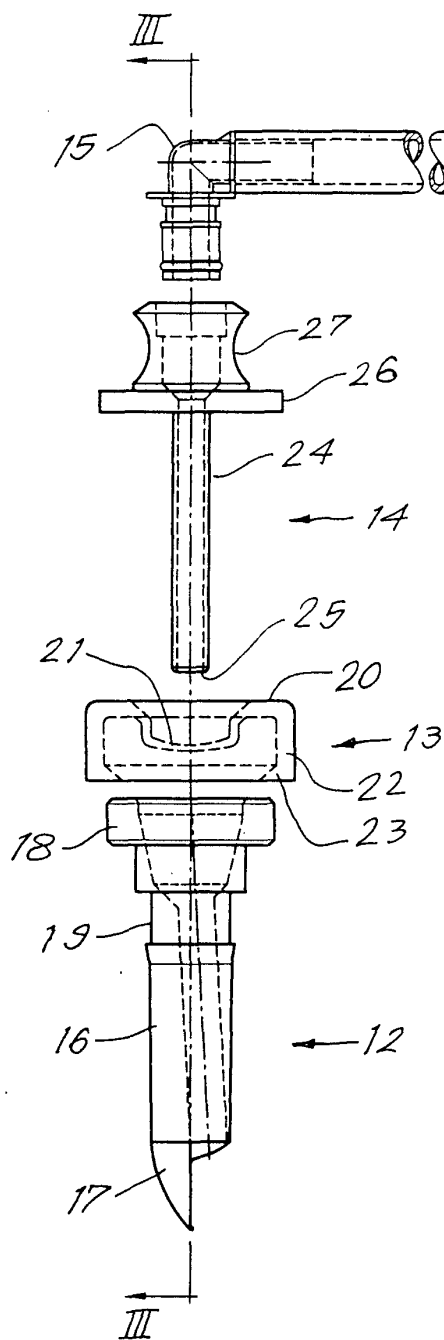


Fig. 2

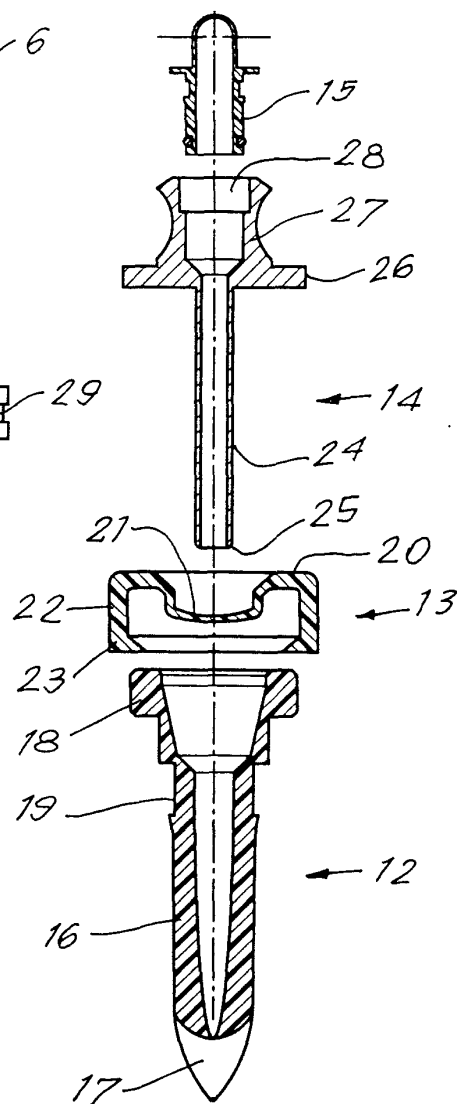
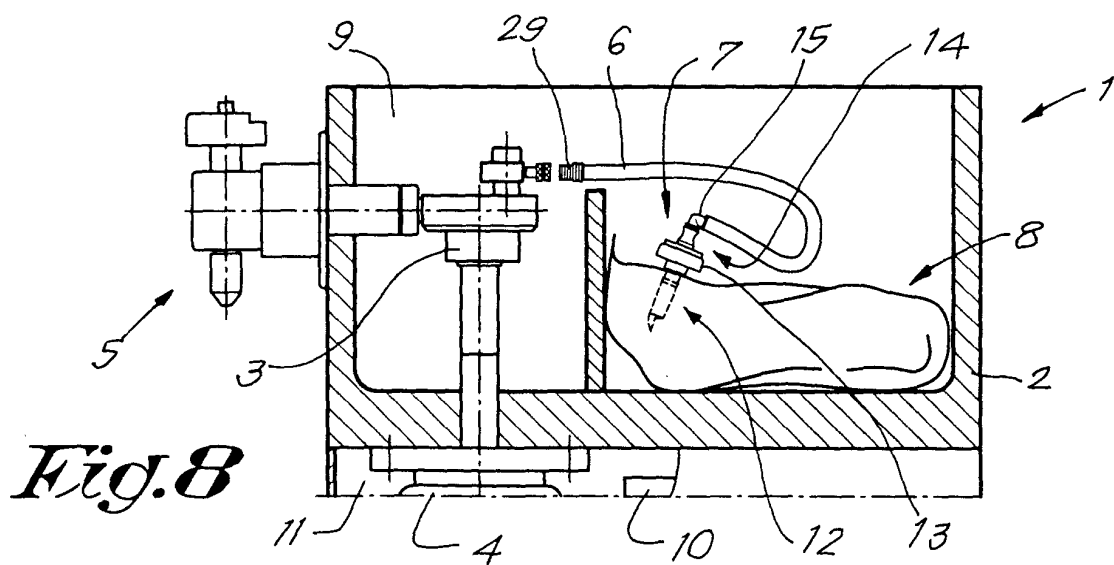
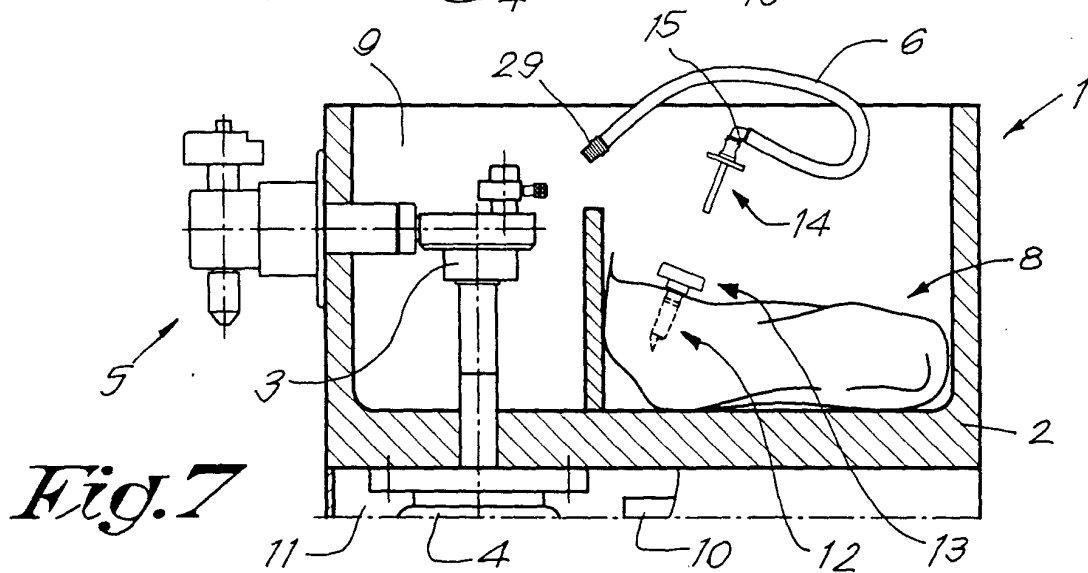
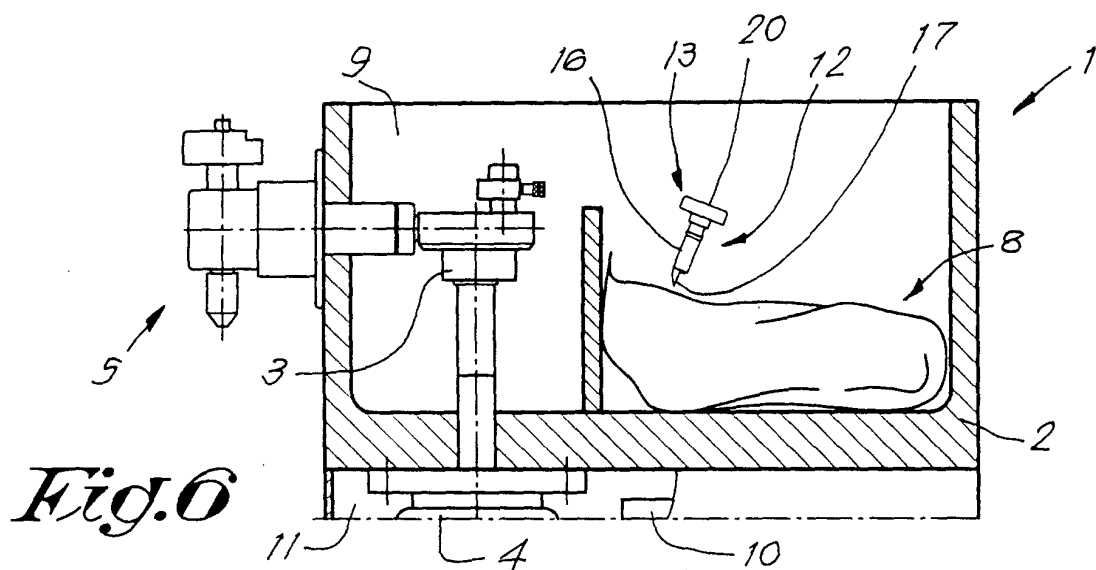


Fig. 3



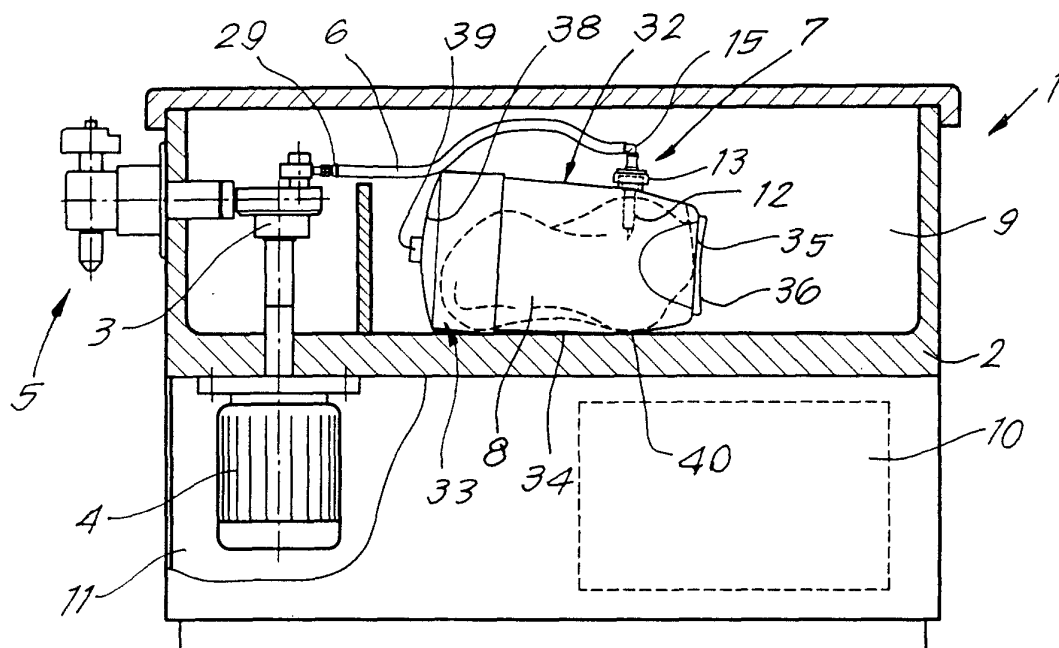


Fig.9

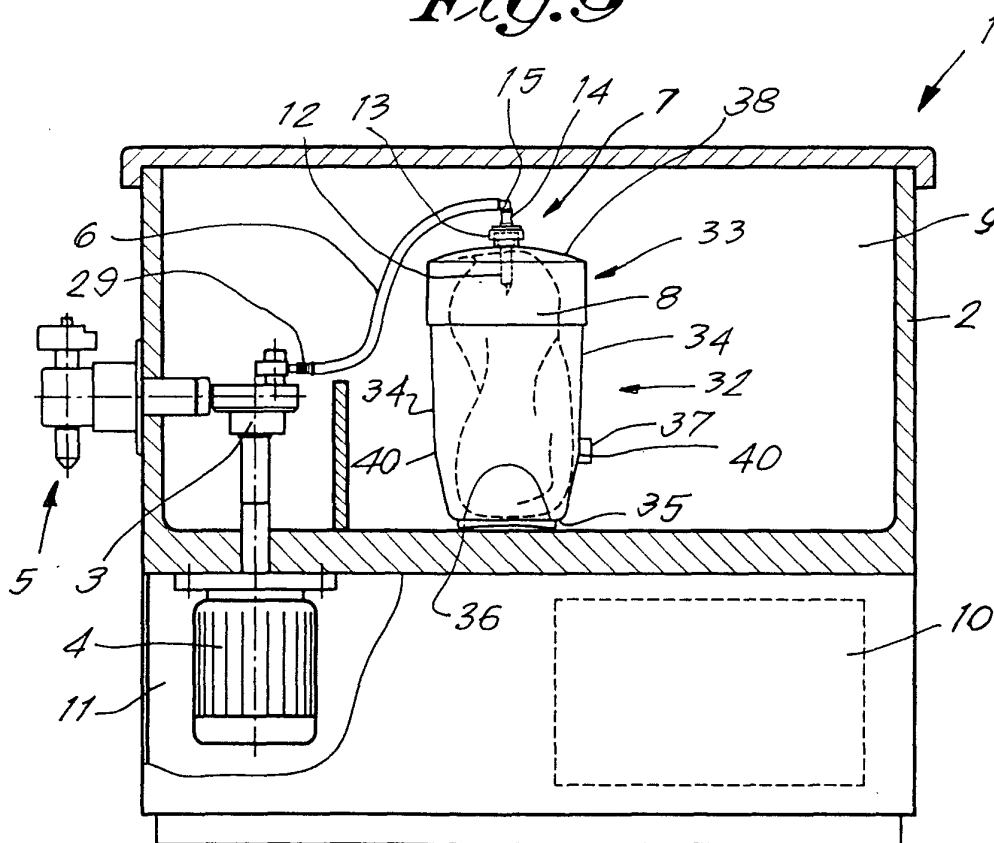


Fig.10



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EUROPEAN SEARCH REPORT

Application Number
EP 01 20 0863

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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