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(12) # EUROPEAN PATENT APPLICATION

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(54) **Wickering plant for empty glass bottles.**

(57) When the head (12) has laid the glue on the bottom (3), the manipulator takes the bottle (1) from the belt conveyor (2) and brings it on the bottom (3). In a further stop station, an arm (16) brings a cord end (18), with a raising movement, to be crossed on the bottle neck and, while the glueing heads (20) fix a portion of the cord, a length of this one can be cut by means of shear (21). An additional manipulator (22) with pliers (23) puts the dress (24), already fitted by hand, in tension and a system of springs (25), by means of the piston (26), allows the lower part of the assembly in operation to reach a bell (27). A plug (28) is foreseen which, by means of a piston (29), drags the dress as well as a binding device to complete the operation.

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"WICHERING PLANT FOR EMPTY GLASS BOTTLES".

The invention device refers to a plant on an advancing line for wickering empty glass bottles, particularly the traditional "Tuscan flasks". These flasks can be wickered in different ways with the present methodologies, by laying at first a small tress on the neck of the glass container with a catching part, if any, the end of which, in lower crossed position, are kept under pressure by a dress consisting of ribbon like elements in lacutrine herd or other, and composed at the upper end of a collar to be fitted in succession. The disposition of the dress is allowed by the above collar which stops its descent on the initial part of the truncated-cone container. A bottom is then introduced from below into the dress and brings it down on the container bottom, and the unit is blocked by means of a plug fitted into an annular mouth which, in interposition, drags the end part of the dress. The processing can be completed by means of a transversal binding which solidarily integrates the components of the bottom. A quite original containing means is thus obtained called "Tuscan flask", absolutely original and highly efficient, in which particularly its wickering gives a bottom which avoids upsetting, with smooth contact. Everywhere well known as a prestigious container of the typical Tuscan wine, to be still known as such, this container must maintain its peculiar individualizing fetures, while the heavy problem remains of reducing the excessive production costs, and of transforming this production from an handcraftsman base into an industrial one. Starting from this point of view, the invention system carries out a plant with three automatic manufacturing stations and other ones with manual work which, by means of new operative methodologies, allows to consistently reduce the technical operation times, while the composite features of the finished goods still remain the same.

Substantially, the operative cycle foresees that the bottles 1 arrive on the belt conveyor 2, while the bottoms 3 reach on the belt conveyor 4. By means of the linear actuator 5, the above mentioned bottom 3 reaches the cup 7, on line 6, which is carried on an advancing line with couple of jack chain 8, in a second station where a glueing device is in operation which consists of a fixed part 9, this last part lets the sledge 11 with head 12 advance on guides 10. The said head 12 puts the glue on three points of bottom 3. Subsequently, the manipulator 13 takes the first bottle 1 by means of pliers 14 and brings it on bottom 3, thus performing glueing by contact. The complex thus formed of bottle 1 with bottom 3 reaches the third station. Bottle 1 and its bottom 3 are here blocked by the sinking pusher 15 which thus restrains the complex of the cup 7 arrived in station. An arm 16, with a motor assembly 17, holding a cord 18, turns in elevation and, while still holding the cord by means of pliers 19, lays it on the bottle neck 1. Two glueing counterposed heads 20 then intervene to fasten the two ends of a cord length 18 on the container 1, the length of the cord being determined by means of the shear 21. A sequence oh half-treated bottles 1 in cups 7 thus results on the advancing line 8. In a fourth station, an operator then fits a dress on the bottle neck whick, while sinking, is stopped in position by means of its collar thus covering the sticked terminals of the cord 18. In the subsequent fifth station, the bottle set are taken away from the cups 7 by a manipulator 22 by means of as many pliers 23, which form a right angle, and the dress 24 is put in tension by a set of springs 25 while sinking through piston 26 which pushes the assembly in working into a bell 27. This bell puts the dress streaks into conversion to allow them to be dragged in interposition in the subsequent phase for introducing a plug 28 performed by a piston 29. Then the multiplier 22 is still turned by 90° and brings the above mentioned manufacturing set into a sixth binding section. In this section, a rotating arm 30, coming out from the central positioning assembly 31 of the cord 32, which is kept back by pliers 33, performs two rotations on the binding plane and then stops on pliers 34 which perform knotting while a knife 35 determines the length of the used cord completing wickering. The manipulator 22 then still turns by 90° and lets down the set of wickered bottles on a belt conveyor 36. In order to adjust the containing means in first station to the sizes of the bottles during the operation is foreseen, as a counterpost of cup 7, a portable cup 37 which is put in position by means of a bayonet base. For adjustment, the means is detached, the support turned by 180° and again blocked in position. In particular, the operation for fitting the cord 18 on the bottle neck 1 by pasting the ends of the counterposed glueing ends 20 by carrying out a solidarily operating positioning, allows to speed up the fitting phase of the dress in the fourth station as well as the analogous positioning type as carried out for the bottom 3, allows to hasten the working phases for the bottom.

An execution form of a plant on an advancing line for wickering the "Tuscan flask" is illustrated, in a merely schematic way, in the drawings of the tables 1, 2, 3, 4 and 5. With reference to these tables, fig. 1 of table 1 is the view of the operational compartment of the first station. In table 2, fig. 2 is the view of the operative compartment in

the second station. Fig. 3 in table 3 is the view of the operative compartment in the third station. Fig. 4 in table 4 is the view of the advancing line to show the feeding system of the bottles 1 and of the bottom 3. Fig. 5 is the view of the manipulator 22 with the pliers device 23. Fig. 6 is the view of the manipulator 22 enabling the operations by means of 90° -phase-deplacements in succession. In table 5, fig. 7 is the view of a bottle with fitted tract cord 18. Fig. 8 is a view of the same bottle like the one of fig. 7 with the dress 24 fitted on it. Fig. 9 shows the arrival of the bell 27 working assembly on the bottom which approaches the end part of the dress. Fig. 10 is the view of the longitudinal section of the same fig. 9 with linear actuator 29 which ha put into the plug 28 from below and blocked it thus in position. Fig. 11 is a particular of bottom binding phase, which thus completes the operations.

The plant can be carried out in different ways, and components can be foreseen to be used differently according to the specific features of the plant to carry out, as well as the bottles to wicker. The plant can also be integrated in different ways with means and devices of different kinds according to the requirements.

Claims

1. Wichering plant for empty glass bottles, characterized by the fact that the arrival of the bottles (1) on the belt conveyor (2) is foressen while the bottoms (3) reach the belt conveyor (4). By means of the linear actuator (5), these bottoms arrive on line (6) in a cup (7) transported on an advancing line of couple of jack chain (8) in a second station, where a glueing device is in operation which consists of a fixed part (9) to let advance, on guides (10), the sledge (11) which bears the head (12). This head fits the glue on three points of the bottom (3). By means of pliers (14) a manipulator (13) catches the first bottle (1) at the head from the transporting line (2) and brings it on the bottom (3) to be glued by contact. The complex thus formed of bottle (1) with its bottom (3) then reaches the third station. Here the bottle (1) with its bottom (3) is blocked by a sinking pusher (15) which restrains the assembly on the cup (7) arrived in station. An arm (16) with motor assembly (17), which restrains a cord (18), turns in elevation and, while keeping the same cord retained by pliers (19), lets it on the bottle (1) neck. Two counterposed pasting head (20) then intervene which glue the two cord ends (18) on the container (1), the cord length being determined by shear (21). On teh advancing line (8), a sequence of half-treated bottles (1) thus results in the cups (7). In the fourth station, an operator fits a dress on the neck of the bottle which sinks and stops in position by means of its collar, thus covering the end pasted on the cord length (18). In the subsequent fifth station, the set of bottles are taken away from the cups (7) with a manipulator (22) by means of as many pliers (23), dephased by 90°, and dress (24) is put in tension by a system of springs (25) sinking by means of a piston (26) which pushes the working assembly into a bell (27). This last one brings the dress stripes in conversion to allow them to be dragges in interposition in the subsesquent phase for introducing a plug (28) operated by a piston (29). The manipulator (22) then still turn by 90° and brings the above set of assemblies in the sixth binding station. In this station, a turning arm (30) getting out from the central positioning assembly (31) of the cord (32) kept back by pliers (33), performs two rotations on the binding plane and stops on pliers (34) to be knotted, while a knife (35) determines the length of the used cord and completes the strawing operation. The manipulator (22) then still turns by 90° and lets down the set of wickered bottles on a belt conveyor (36).

2. Wickering plant for empty glass bottles, as per claim 1), characterized by the fact that in order to suit the containing means to the sizes of the bottles still in treatment in the first station, an additional cup (37) is put to check cup (7) by means of a bayonet base. For adjustment, the means is detached, the support turned by 180°, and once again blocked in position.

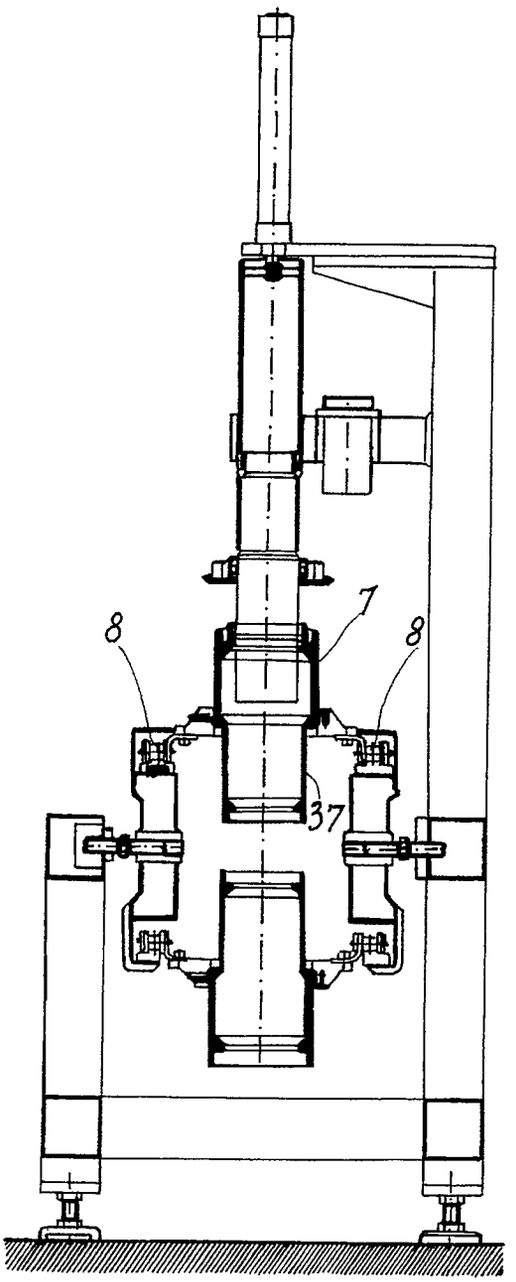

FIG.1

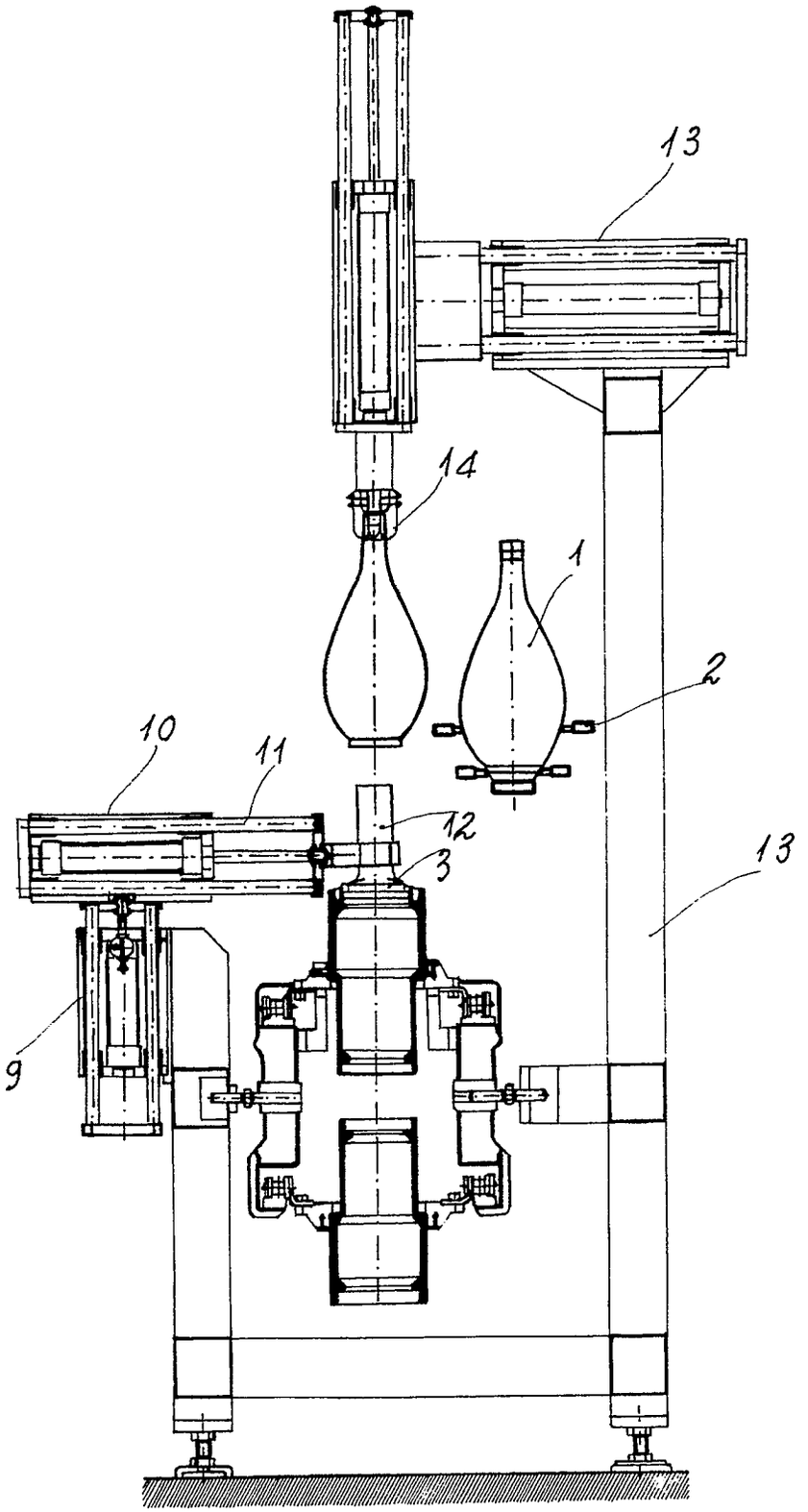

FIG. 2

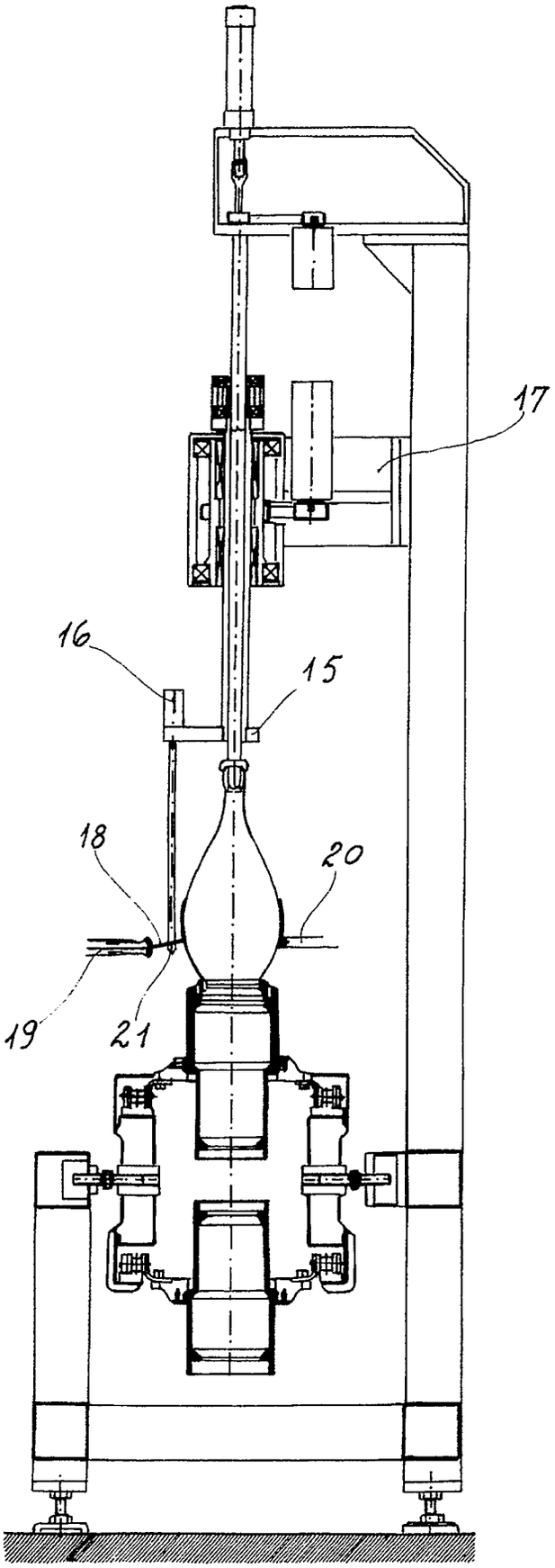

FIG. 3

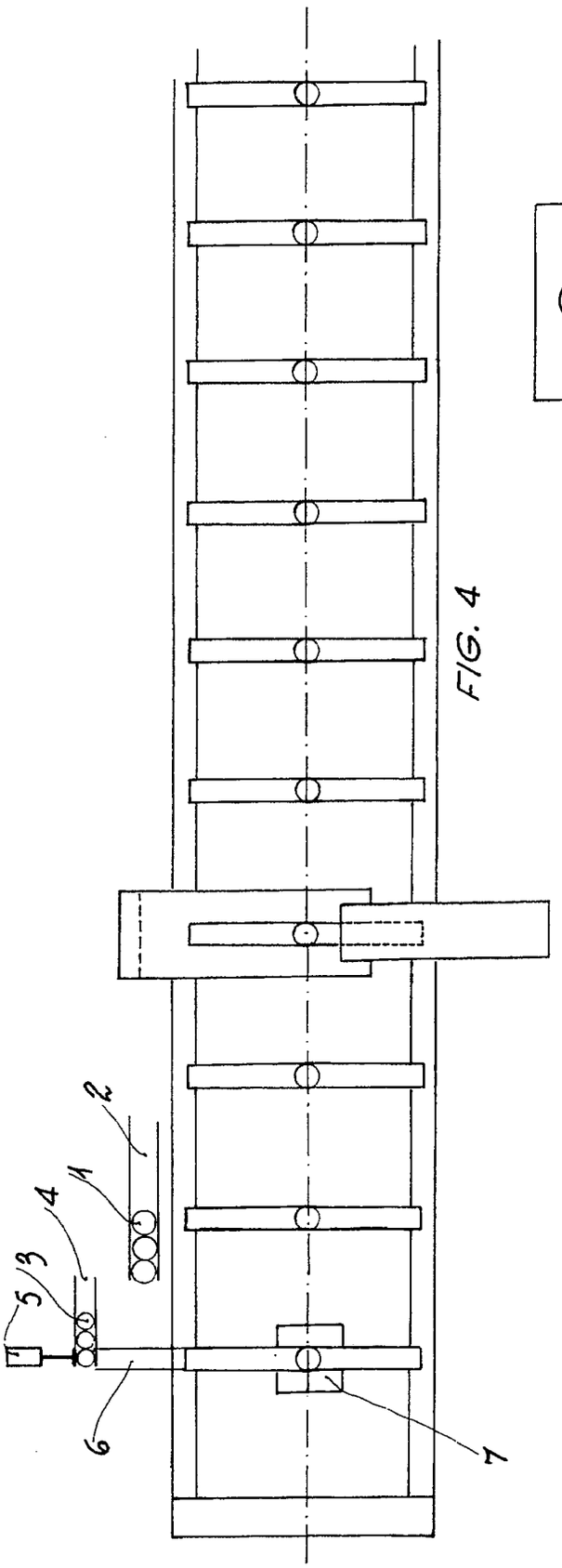

FIG. 4

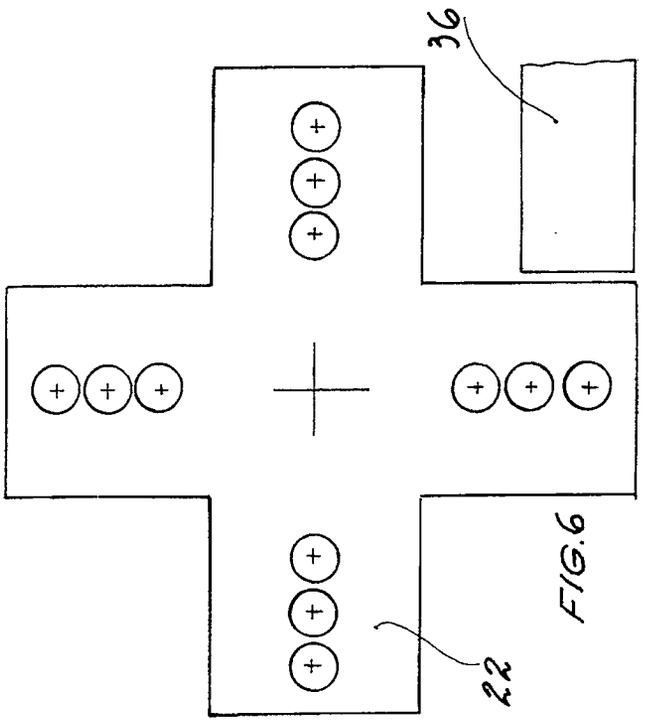

FIG. 6

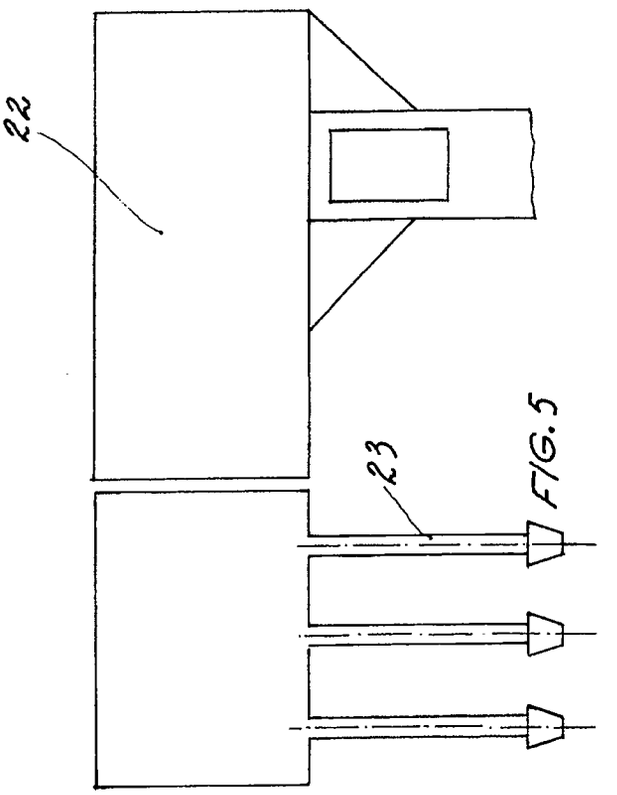

FIG. 5

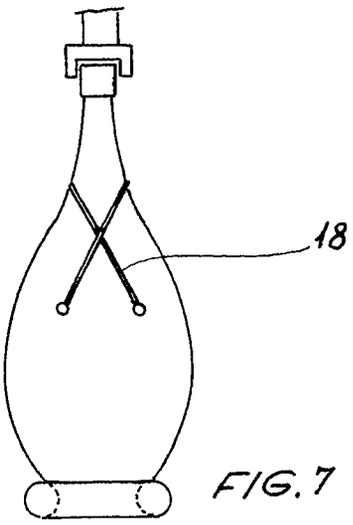

FIG. 7

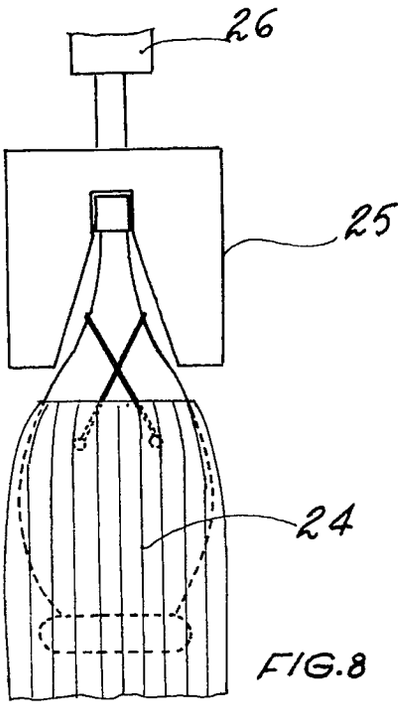

FIG.8

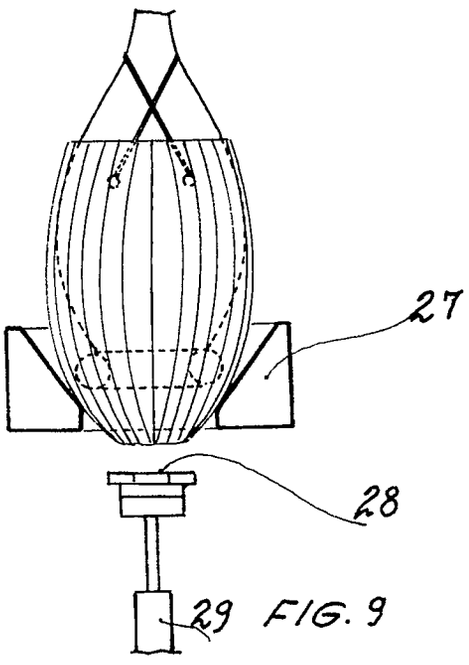

FIG. 9

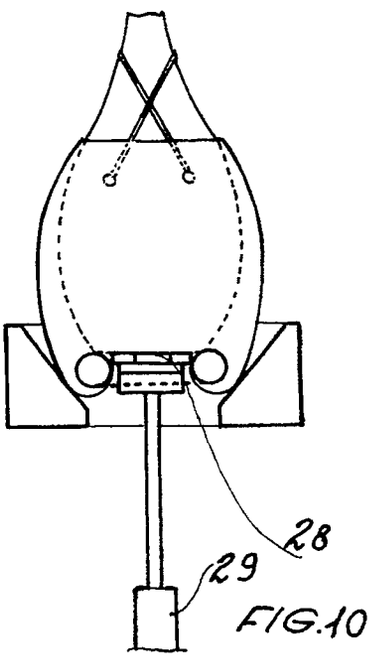

FIG.10

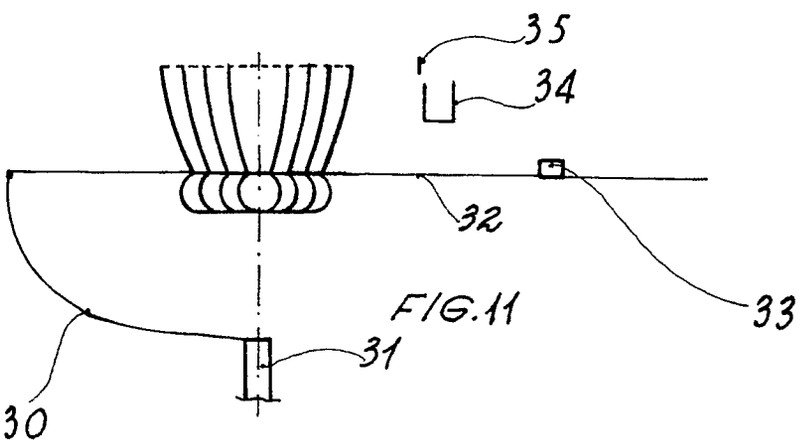

FIG.11

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EUROPEAN SEARCH REPORT

Application Number

EP 90 83 0050

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	FR-A-2 163 002 (BRANDIGI) * Complete document * -----	1	B 65 B 21/24

TECHNICAL FIELDS SEARCHED (Int. Cl.5)
B 65 B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	29-08-1990	NGO SI XUYEN G.

CATEGORY OF CITED DOCUMENTS

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