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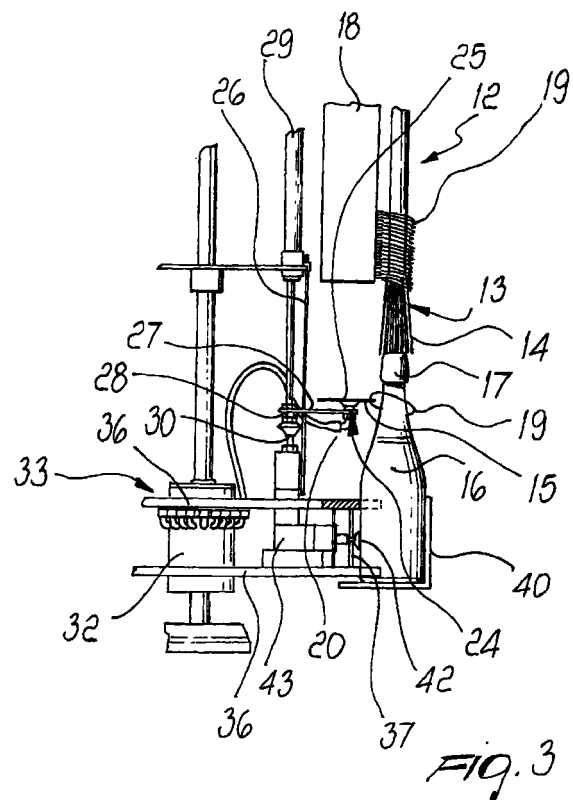
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(54) **Apparatus for fitting hanging tags on bottles**

(57) A machine (10) for fitting hang-tags or the like on bottles, characterized in that it comprises, on a supporting structure (11), at least one assembly (12) which follows, over a certain extent, each bottle (16) in transit from bottling, the assembly (12) being constituted by a longitudinally elongated guide (13) on which the loops to be fitted are stacked and whose lower end is shaped so as to axially blend with the head of the bottle (16). A magazine is associated with the guide (13) so as to lie parallel thereto, is open at the bottom and is meant to contain, in a stacked configuration with lower supports, the tags (15) carried by the loops. Actuation means are present which are suitable to remove from the magazine the lowest tag (15) of the stack, forcing its loop to fit over the neck of the bottle (16).



Description

[0001] The present invention relates to a machine for fitting hang-tags or the like on bottles.

[0002] It is known that especially in the field of winemaking it can be important for the winemaker to characterize his product by using various distinctive symbols or letterings which are meant to provide information to the user and to point out the qualities, in terms of winemaking methods and provenance, of the content of a marketed bottle.

[0003] In particular, decorative items such as neckbands, or other items having an otherwise slotted shape, have long been used to support hang-tags on which the logo of the winery or other information or product identification lettering is printed or otherwise applied.

[0004] Medium-capacity bottling machines currently have, as a rough guide, a production rate of five to six thousand bottles per hour.

[0005] Production machines can reach rates of more than 100,000 bottles per hour in various sizes and capacities.

[0006] Inevitably, in order to avoid a bottleneck in the normal flow of production it has been calculated that in order to handle a rate of 6000 1-liter bottles/hour it is necessary to provide at least six people who are suitable to fit the decorative items at the output of the bottling machine.

[0007] In the current state of the art there are in fact no automatic machines capable of fitting said items.

[0008] The aim of the present invention is to provide a machine particularly for fitting decorative items such as neckbands with a hang-tag or the like on bottles, which provides said fitting in a fully automatic manner without any presence of the operator except for some steps for the setup of said machine.

[0009] Within the scope of this aim, an object of the present invention is to provide a machine which has fitting rates which are compatible with those of bottling machines.

[0010] Another important object of the present invention is to provide a machine which requires low energy consumption for its operation.

[0011] Another object of the present invention is to provide a machine which is structurally sturdy and has low energy consumption.

[0012] Another object of the present invention is to provide a machine whose purchase and operating costs are competitive with respect to the manual solution.

[0013] Another object of the present invention is to provide a machine whose structure is particularly flexible in terms of bottle types and sizes to be processed and can also be manufactured with known technologies and equipment.

[0014] This aim, these objects and others which will become apparent hereinafter are achieved by a machine for fitting hang-tags or the like on bottles, char-

acterized in that it comprises, on a supporting structure, at least one assembly which follows, over a certain extent, each bottle in transit from bottling, said assembly being constituted by a longitudinally elongated guide on which the loops to be fitted are stacked and whose lower end is shaped so as to axially blend with the head of the bottle, a magazine being associated with said guide so as to lie parallel thereto, said magazine being open at the bottom and being meant to contain, in a stacked configuration with lower supports, tags carried by said loops, actuation means being present which are suitable to remove from the magazine the lowest tag of the stack, forcing its loop to fit over the neck of the bottle.

[0015] Further characteristics and advantages of the present invention will become apparent from the description of an embodiment thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a perspective view of a machine according to the invention;

Figure 2 is a partially sectional elevation view of part of the machine of Figure 1;

Figure 3 is a further partially sectional elevation view of part of the machine of Figure 1;

Figures 4 and 5 are, respectively, a perspective view and a plan view of two details of the machine of Figure 1.

[0016] With particular reference to Figures 1 to 5, a machine particularly for fitting items such as neckbands with a hang-tag or the like on bottles, according to the invention, is generally designated by the reference numeral 10.

[0017] The machine 10 comprises, on a supporting structure 11 which is described in greater detail hereinafter, a plurality of identical fitting assemblies, each of which is generally designated by the reference numeral 12 and comprises a longitudinally elongated guide 13 which in this case is vertical and on which the loops 19 in be fitted are stacked; the lower end 14 of said guide is shaped so as to blend with the head 17 of the bottle, designated by the reference numeral 16.

[0018] A magazine 18 for containing the tags 15 associated with the loops 19 in a stacked configuration is associated with each one of the guides 13.

[0019] The transverse contour of the magazine 18 is complementary to the contour of the tags 15.

[0020] Actuation means, generally designated by the reference numeral 20, are furthermore provided; they are suitable to remove the lowest tag 15 of the stack from the magazine 18, forcing its slot 19 to fit on the neck of the bottle 16.

[0021] In particular, the lower end 14 of each one of the guides 13 is substantially provided with a plurality of rods arranged along the edges of art imaginary polygonal pyramid whose larger base faces the head of the

bottle.

[0022] As an alternative, it is possible to provide a tubular frustum-shaped element in which the larger base faces the head 17 of the bottle 17 and has a diameter which is substantially equal to the diameter of the closure of said bottle.

[0023] The magazine 18 is substantially shaped like a half-box, and its open side 22 is directed toward the corresponding guide 13.

[0024] In a downward region, each one of the magazines 18 is further provided with mutually opposite folded portions 23 which are suitable to support the tag 15 so that it rests on them until it is removed by said actuation means 20.

[0025] In particular, said actuation means 20 comprise a first actuator 24 with a sucker 25 which is associated with a guiding stem 26 by means of a sliding bracket 27.

[0026] The axis of the guiding stem 26 is parallel to the axis formed by the corresponding guide 13 and by the bottle 16 during fitting.

[0027] The first actuator 24 is furthermore associated with suction means which can be constituted, for example, by a vacuum pump of a per se known and commercially available type.

[0028] The first actuator 24 is associated with a second movement actuator 28 with a pneumatic cylinder 29, whose stem is also associated with the bracket 27 for moving said first actuator 24.

[0029] The machine 10 further comprises, at each one of the second actuators 28 and coaxially to them, corresponding first stroke limiters 30 for controlling the vacuum for removing and releasing the tag 15.

[0030] In particular, the first stroke limiters 30 are provided with a vacuum valve, are actuated by said pneumatic cylinder 29, and actuate the discharge of the vacuum and the consequent release of the tag 15 from the grip of the sucker 25.

[0031] The structure 11 of the machine 10, in this case, is of the carousel type and supports the assemblies 12 in a circumferential arrangement.

[0032] In particular, it is constituted by a central rotating axis 31 which supports an intake manifold 32 for the first actuators 24 which is also associated, in a downward region, with a first wheel 33 with circumferential seats 34 for the insertion of the body of the bottles 16 coaxially to the corresponding guides 13 during advancement, and is associated, in an upward region, with a second wheel 35 for supporting said guides 13.

[0033] An upper rotary distributor for supplying compressed air is not shown in the figures, whereas the lower rotating manifold 32 for supplying the vacuum is shown in Figures 2 and 3.

[0034] In practice, there is a central manifold which is divided into a region for distributing compressed air and a region for distributing vacuum, said regions being supplied by rotating manifolds.

[0035] In particular, in this embodiment it is the very

movement of the advancing bottles, as they leave the labeling or bottling machine (not shown), that causes the rotation of said first wheel 33 in step with the corresponding guides.

[0036] In particular, the machine 10 is provided with a bottle detection sensor 42 which is associated with a five-way valve 43 which is suitable to synchronously actuate the first and second actuators, designated by the reference numerals 24 and 28 respectively.

[0037] In this embodiment, the first wheel 33 is substantially composite, since it is constituted by two identical plates 36 which are kept spaced by spacer pins 37 and are shaped so as to form said seats 34.

[0038] The machine 10 is further provided with means for the guided advancement of the bottles 16 which are designated by the reference numeral 38 and in this case are constituted by plates 39 provided with folded edges 40 which form, as a whole, guiding channels 41 for the mutual engagement and disengagement of the bottles and of the first wheel 33.

[0039] In practice it has been observed that the present invention has achieved the intended aim and objects.

[0040] It should in fact be noted that the fitting method of the machine according to the invention is entirely automatic.

[0041] The movement of the bottles in fact causes the rotation of the first wheel, which turns the entire supporting structure.

[0042] The actuators and, the alignment of the guides with the corresponding bottles to be fitted are activated in a synchronized manner.

[0043] It is also noted that the machine, by operating substantially by way of the movement of the bottles themselves, allows to perform the fitting operation with minimal energy expenditure.

[0044] Attention is also drawn to the great constructive simplicity of the machine, which has very low purchasing and operating costs which are in any case competitive with respect to the workers otherwise used for this operation.

[0045] The present invention is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept.

[0046] The technical details may be replaced with other technically equivalent elements.

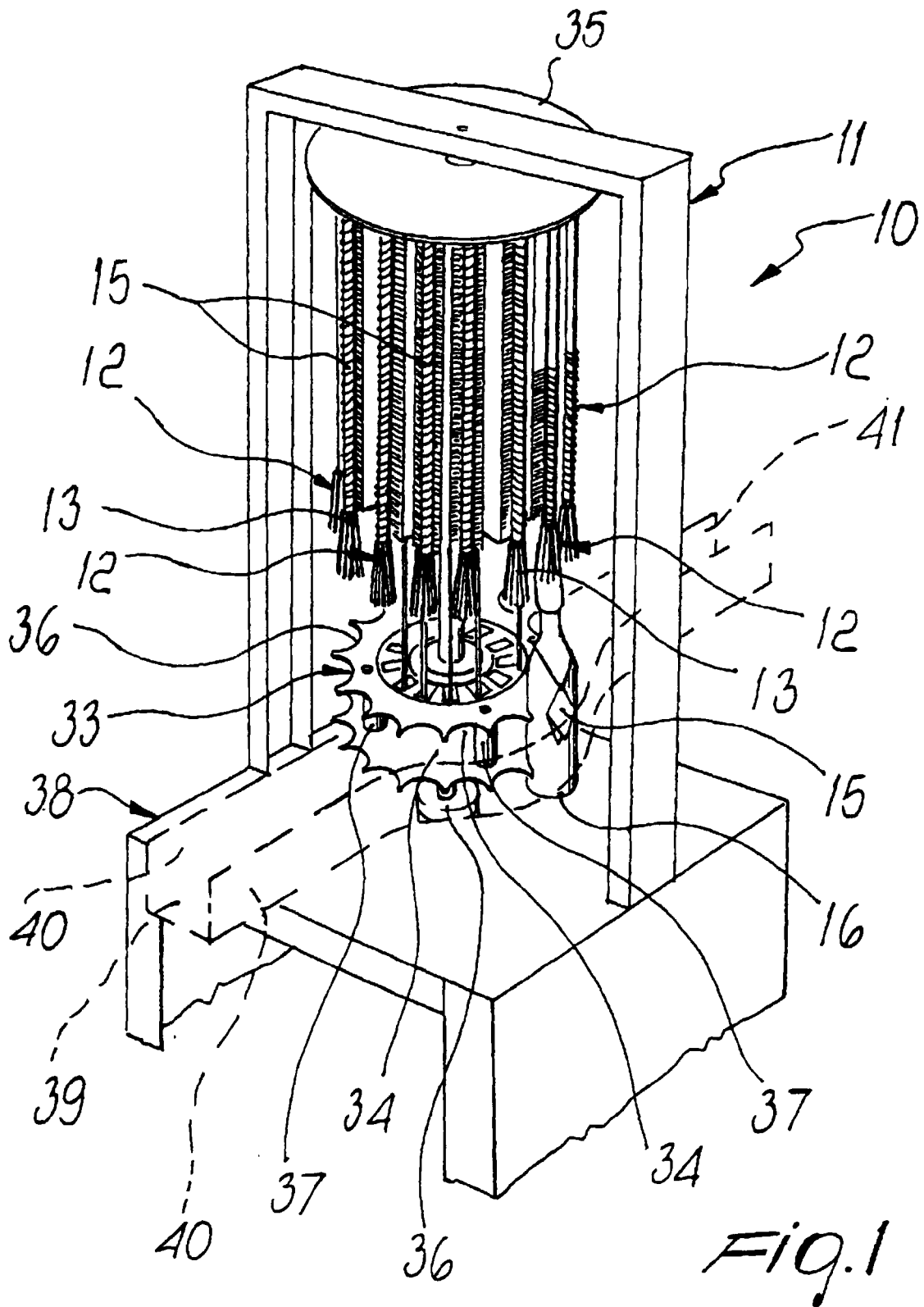
[0047] The materials and the dimensions may be any according to requirements.

[0048] The disclosures of Italian patent application No. PD99A000028, from which this application claims priority, are incorporated herein by reference.

[0049] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A machine for fitting hang-tags or the like on bottles, characterized in that it comprises, on a supporting structure, at least one assembly which follows, over a certain extent, each bottle in transit from bottling, said assembly being constituted by a longitudinally elongated guide on which the loops to be fitted are stacked and whose lower end is shaped so as to axially blend with the head of the bottle, a magazine being associated with said guide so as to lie parallel thereto, said magazine being open at the bottom and being meant to contain, in a stacked configuration with lower supports, the tags carried by said loops, actuation means being present which are suitable to remove from the magazine the lowest tag of the stack, forcing its loop to fit over the neck of the bottle.
2. The machine according to claim 1, characterized in that said lower end of said guide is substantially composed of a plurality of rods which are arranged along the edges of an imaginary polygonal pyramid whose larger base faces the head of the bottle.
3. The machine according to claim 1, characterized in that said lower end of said guide is substantially shaped like a frustum whose larger base faces the head of the bottle and has substantially the same diameter as the closure of said bottle.
4. The machine according to claim 1, characterized in that said magazine is shaped like a half-box which is open in a downward region and toward the corresponding guide.
5. The machine according to one or more of the preceding claims, characterized in that said magazine has, in a downward region, opposite folded portions for supporting said decorative items until removal by virtue of said actuation means.
6. The machine according to one or more of the preceding claims, characterized in that said actuation means comprise a first actuator provided with a sucker which is associated with a guiding stem which is parallel to the axis traced by said guide and by the corresponding bottle.
7. The machine according to one or more of the preceding claims, characterized in that said first actuator is associated with suction means of the vacuum-pump type or the like.
8. The machine according to one or more of the preceding claims, characterized in that said first actuator is associated with a second movement actuator with a pneumatic cylinder which is in turn associated with a bracket with which said first actuator is also associated so as to slide along said guiding stem.
9. The machine according to one or more of the preceding claims, characterized in that it comprises a stroke limiter with a vacuum valve which, actuated by said pneumatic cylinder, actuates the discharge of the vacuum and the consequent release of the tag from the grip of the sucker.
10. The machine according to one or more of the preceding claims, characterized in that said vacuum valve is coaxial to said second actuator.
11. The machine according to one or more of the preceding claims, characterized in that it comprises a plurality of fitting units which are installed along the circumference of said supporting structure, which is of the carousel type.
12. The machine according to one or more of the preceding claims, characterized in that said carousel-type supporting structure comprises a central axis which is associated, in a downward region, with a first wheel with circumferential seats for the insertion of the body of the bottles coaxially to the corresponding guides during advancement, and, in an upward region, with a second wheel for supporting said guides, said bottles being suitable, during their advancement motion, to move said first wheel and therefore the carousel structure, producing actuation in step with said fitting units.
13. The machine according to one or more of the preceding claims, characterized in that it comprises a sensor for detecting the advancing bottles, said sensor being associated with a five-way valve for actuating the corresponding first and second actuators in step.
14. The machine according to one or more of the preceding claims, characterized in that said guides and said bottles are arranged at all times so that their axis is vertical.
15. The machine according to one or more of the preceding claims, characterized in that it comprises means for the guided advancement of the bottles.
16. The machine according to one or more of the preceding claims, characterized in that said means for the guided advancement of the bottles are substantially constituted by plates which are shaped so as to form channels for guiding the bottles so that they engage with, and disengage from, said wheel.



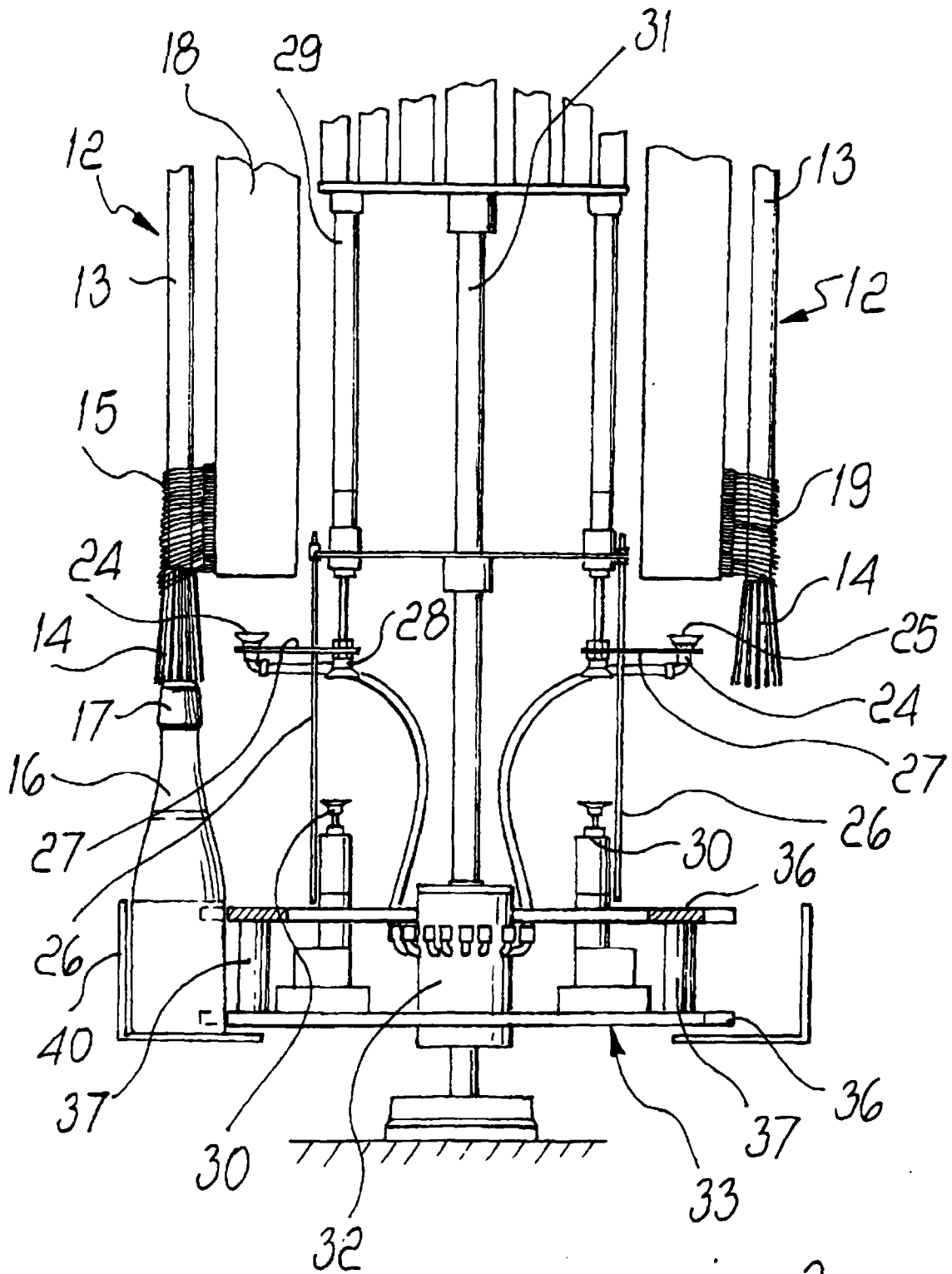


FIG. 2

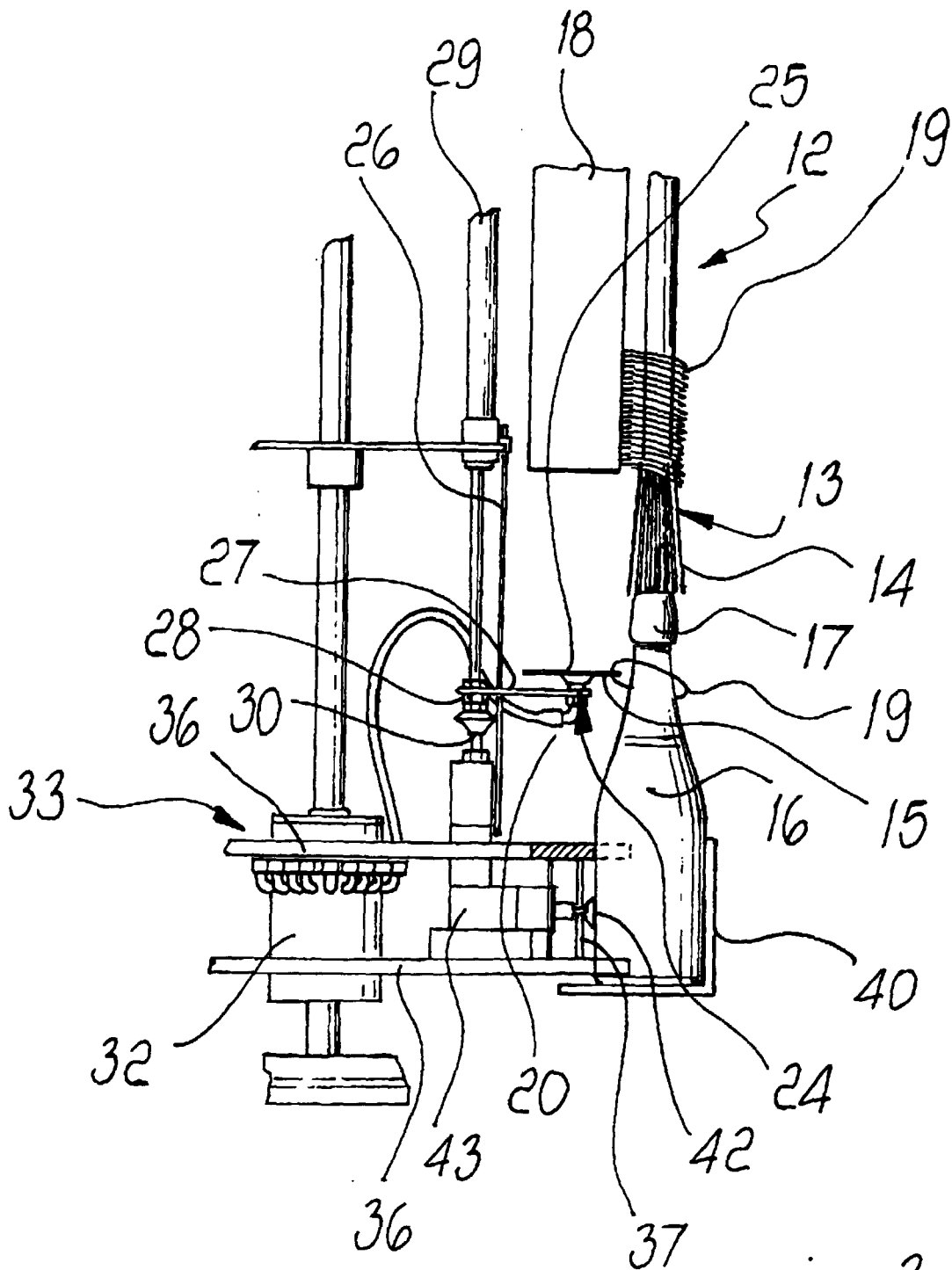
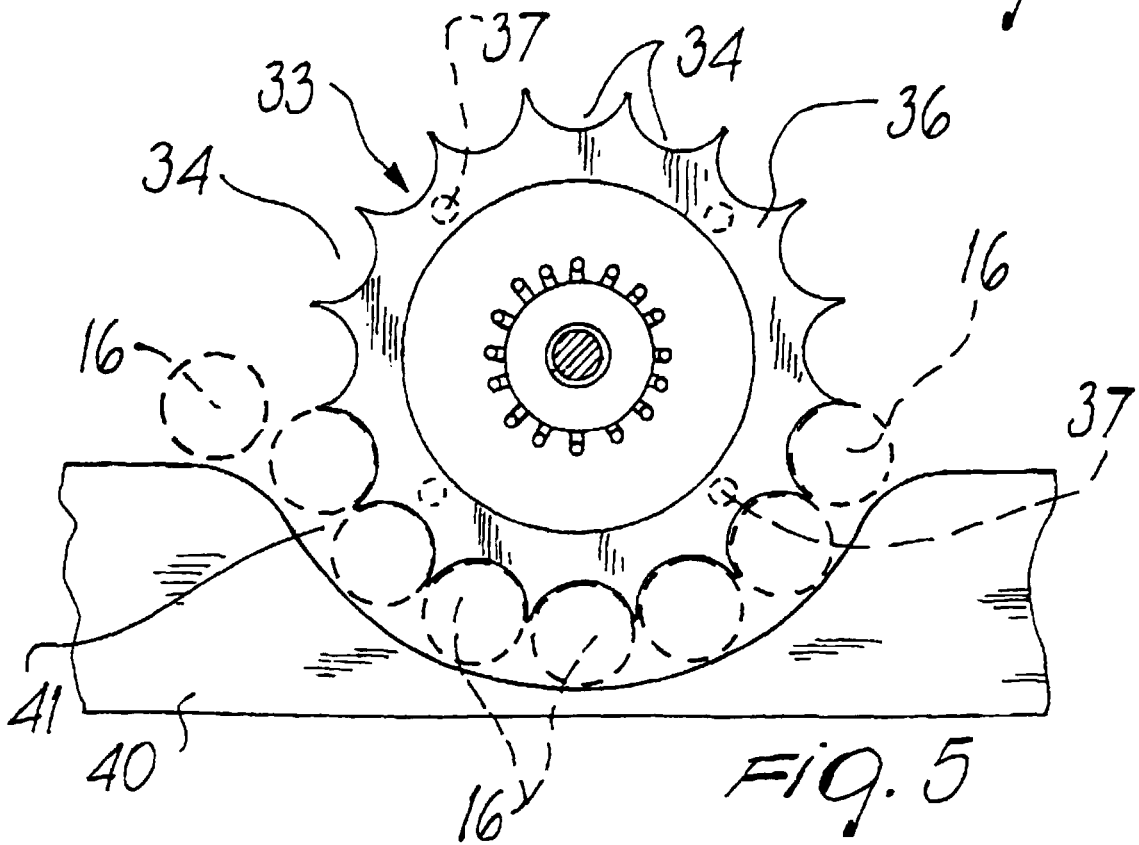
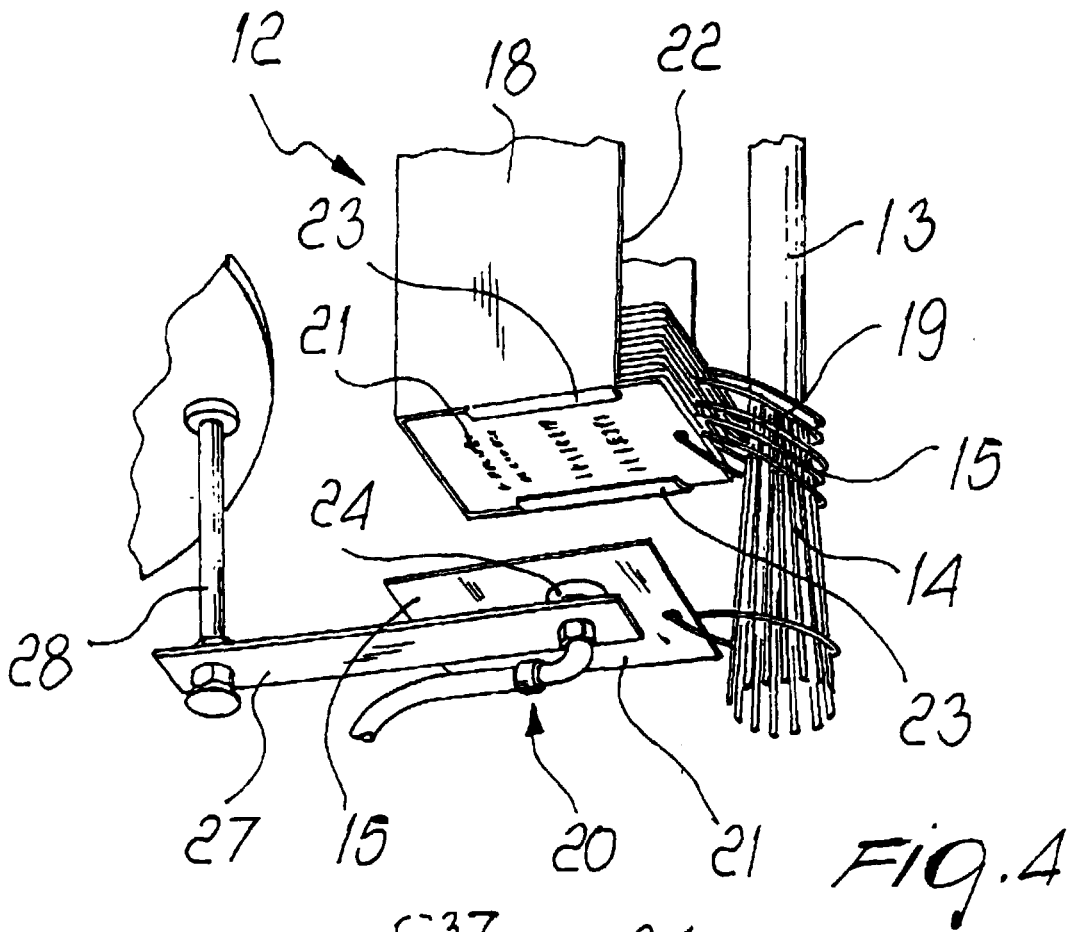


FIG. 3





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EUROPEAN SEARCH REPORT

Application Number
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CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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