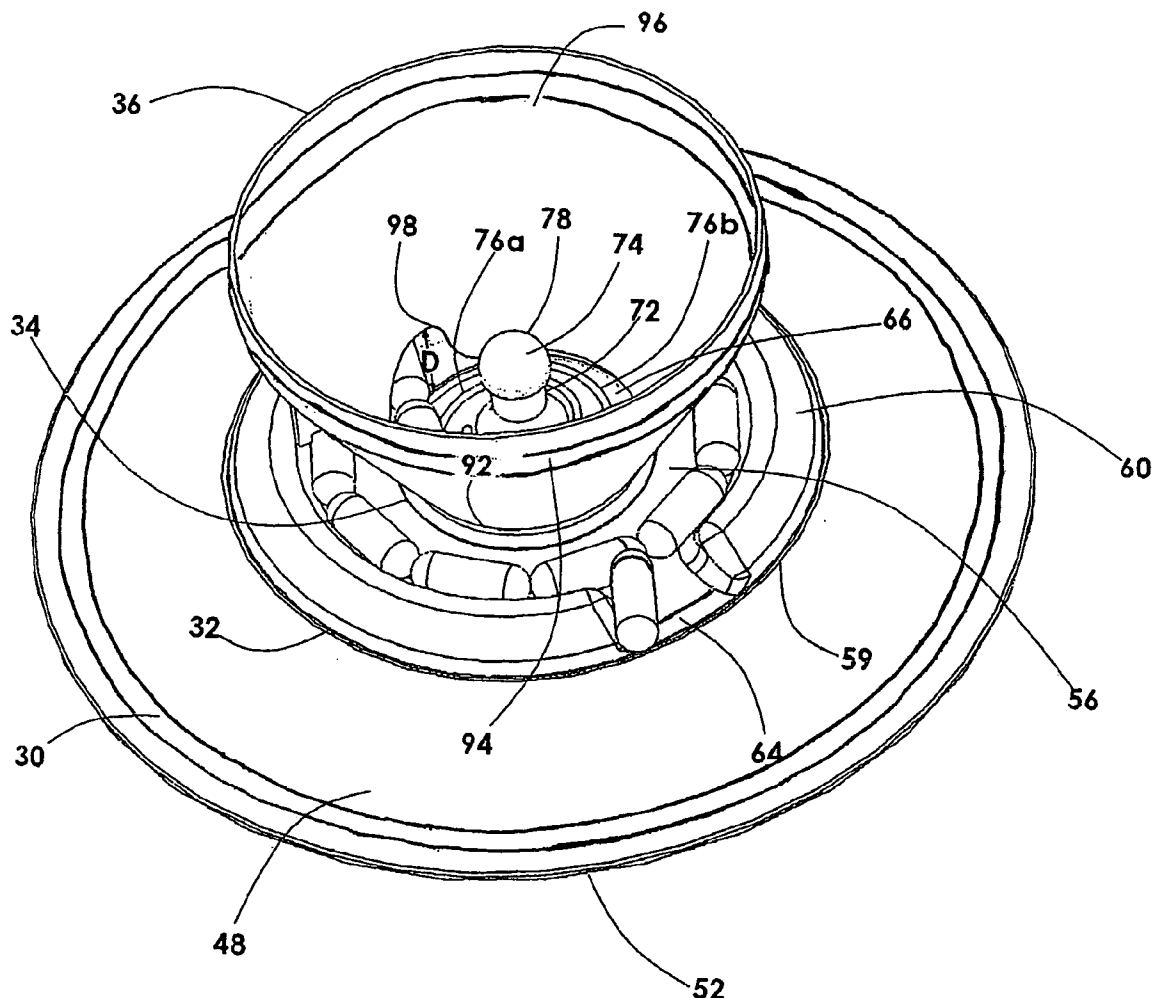


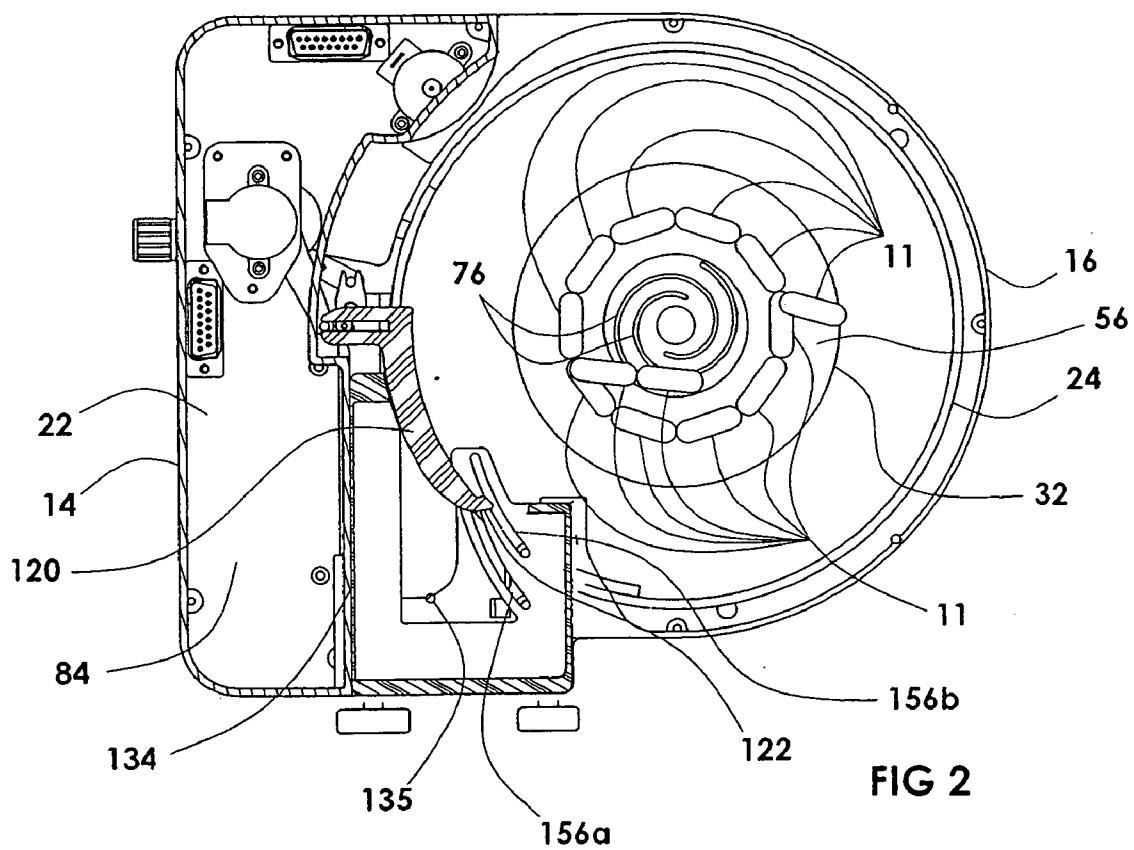
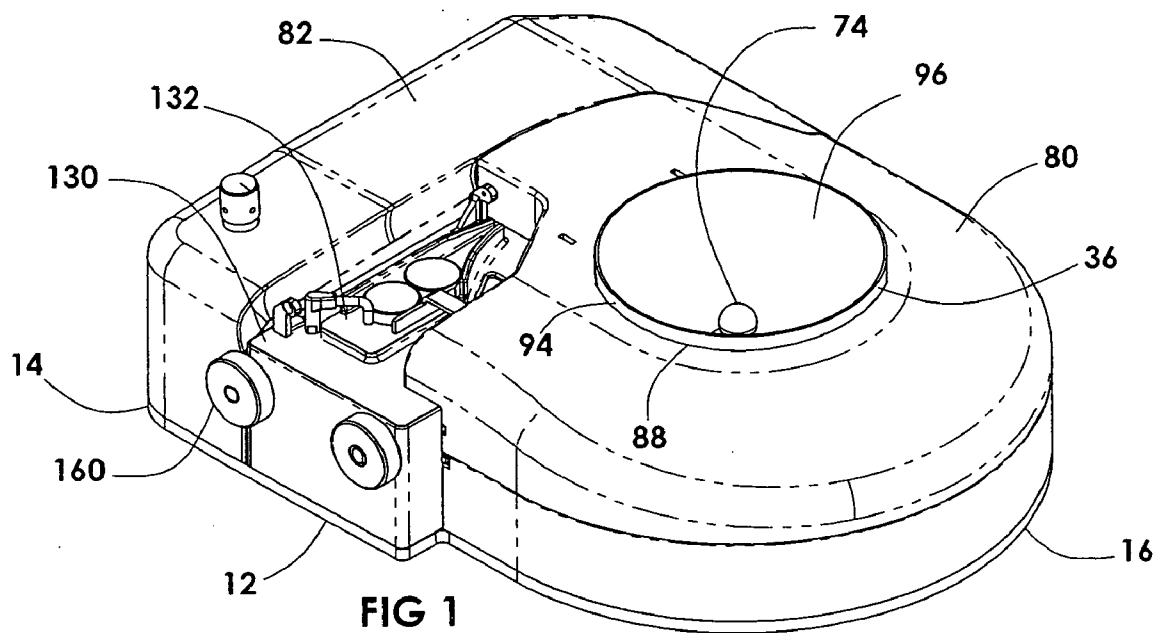


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(19) **United States**(12) **Patent Application Publication**  
**Richardson et al.**(10) **Pub. No.: US 2010/0140287 A1**(43) **Pub. Date: Jun. 10, 2010**(54) **"DISPENSER, SYSTEM AND METHOD FOR  
DISPENSING PILLS"**(52) **U.S. Cl. .... 221/186; 221/1**(57) **ABSTRACT**(76) **Inventors: Jerral Richardson, Waukegan, IL  
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A dispenser, a system and a method dispense pills from a funnel via a notch on a top side of a first disk. The first disk has ridges on a top side of the first disk for transferring the pills from the funnel to a top side of a second disk. The first disk and/or second disk rotate in a first rotational direction to transfer the pills to the second ring via an opening in a ridge of the first disk. A ring located adjacent to the opening of the first disk rotates in a second rotational direction for transferring the pills to a passage which is located adjacent to the ring. A gate and/or a pocket is located between the ring and an interior of the passage which is sized to receive the pills from the funnel. The pocket is sized to receive a pill from the ring of the dispenser. The dispenser has a configuration mechanism for determining and/or for identifying a configuration the pills. One of the pills is inserted between arms of the configuration mechanism to determine the configuration of the pills. A pin is connected to the configuration mechanism for positioning the pin within an interior of the passage based on the configuration of the pills. The pin prevents more than one of the pills from entering the pocket and/or the interior of the passage.





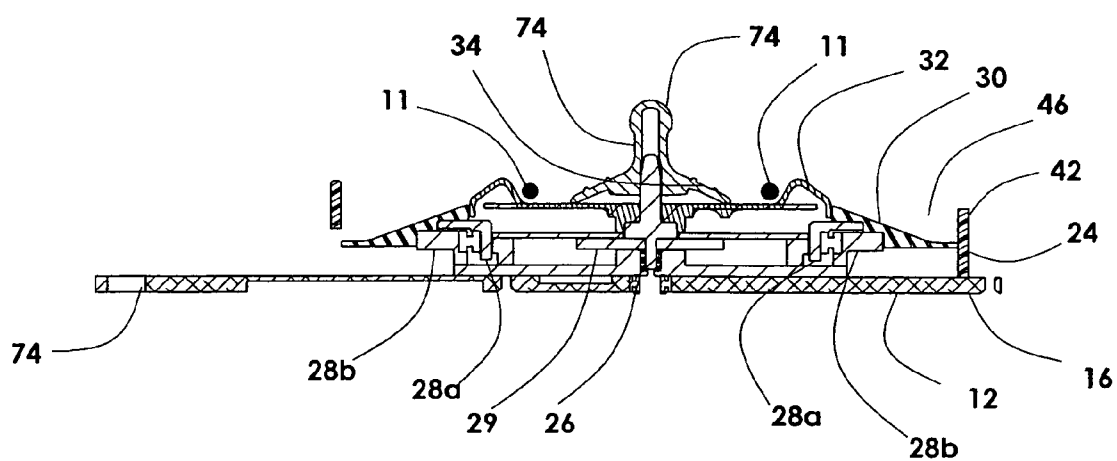
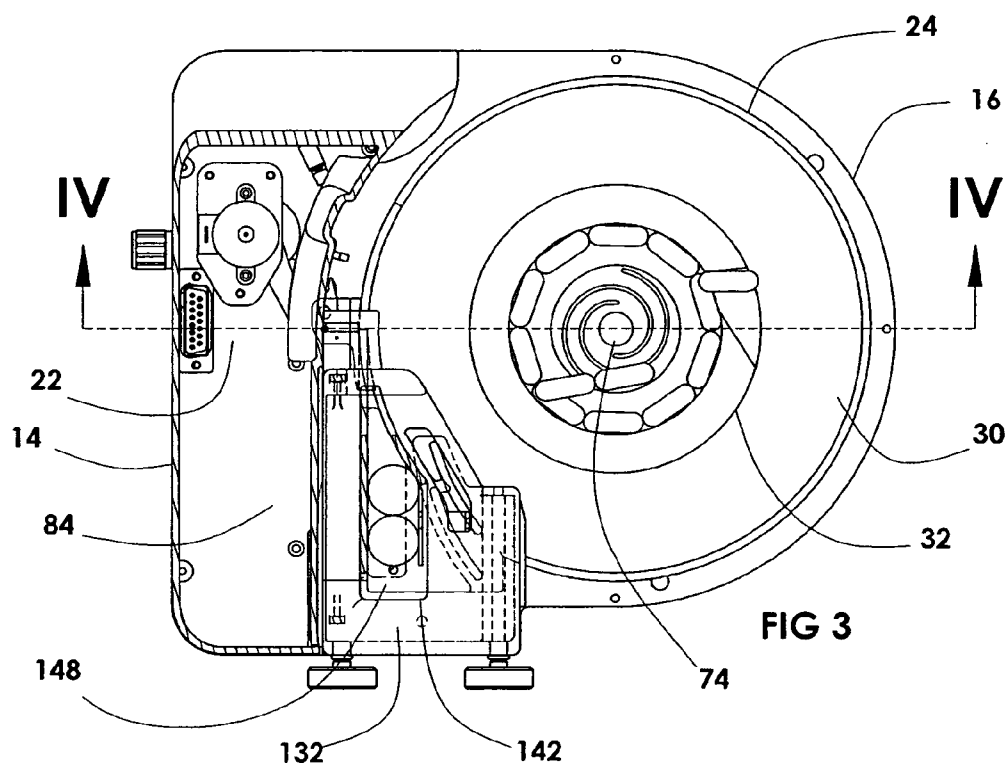


FIG 4

**FIG. 5**

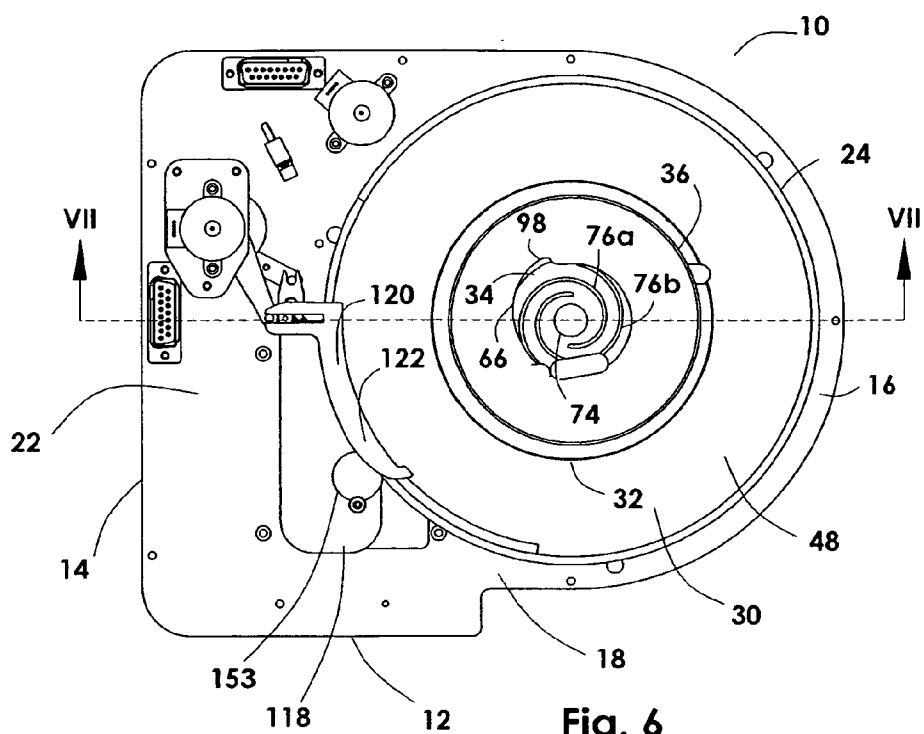


Fig. 6

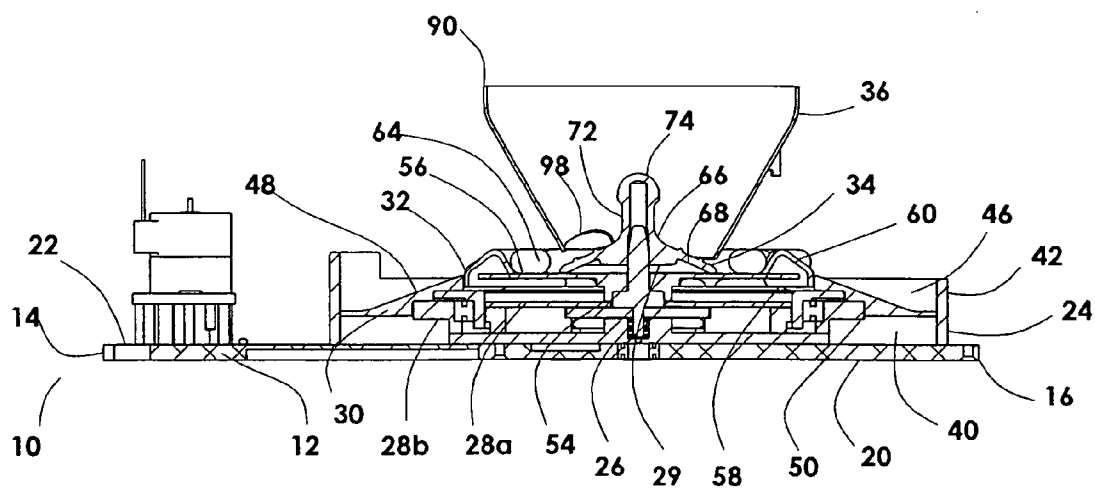


Fig. 7

**FIG 8**

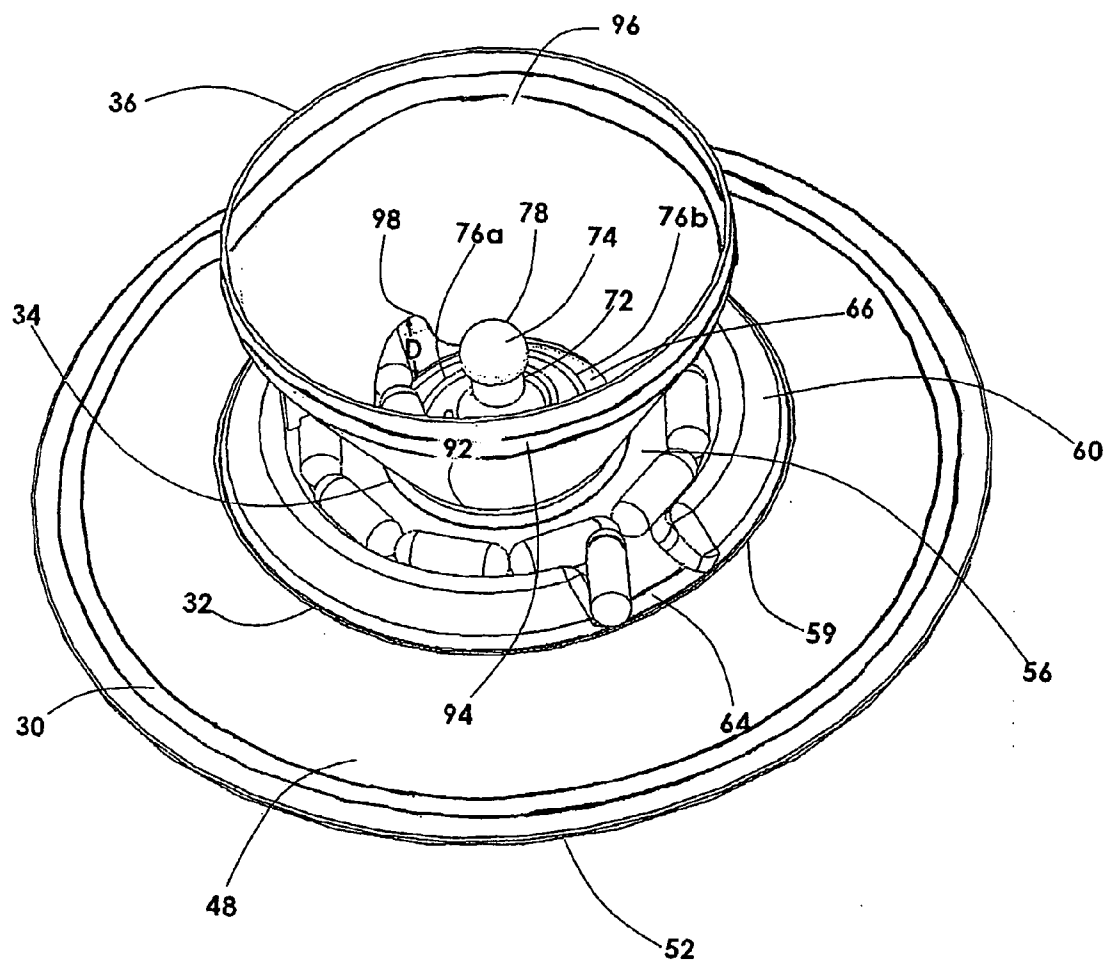


FIG. 9

FIG 10

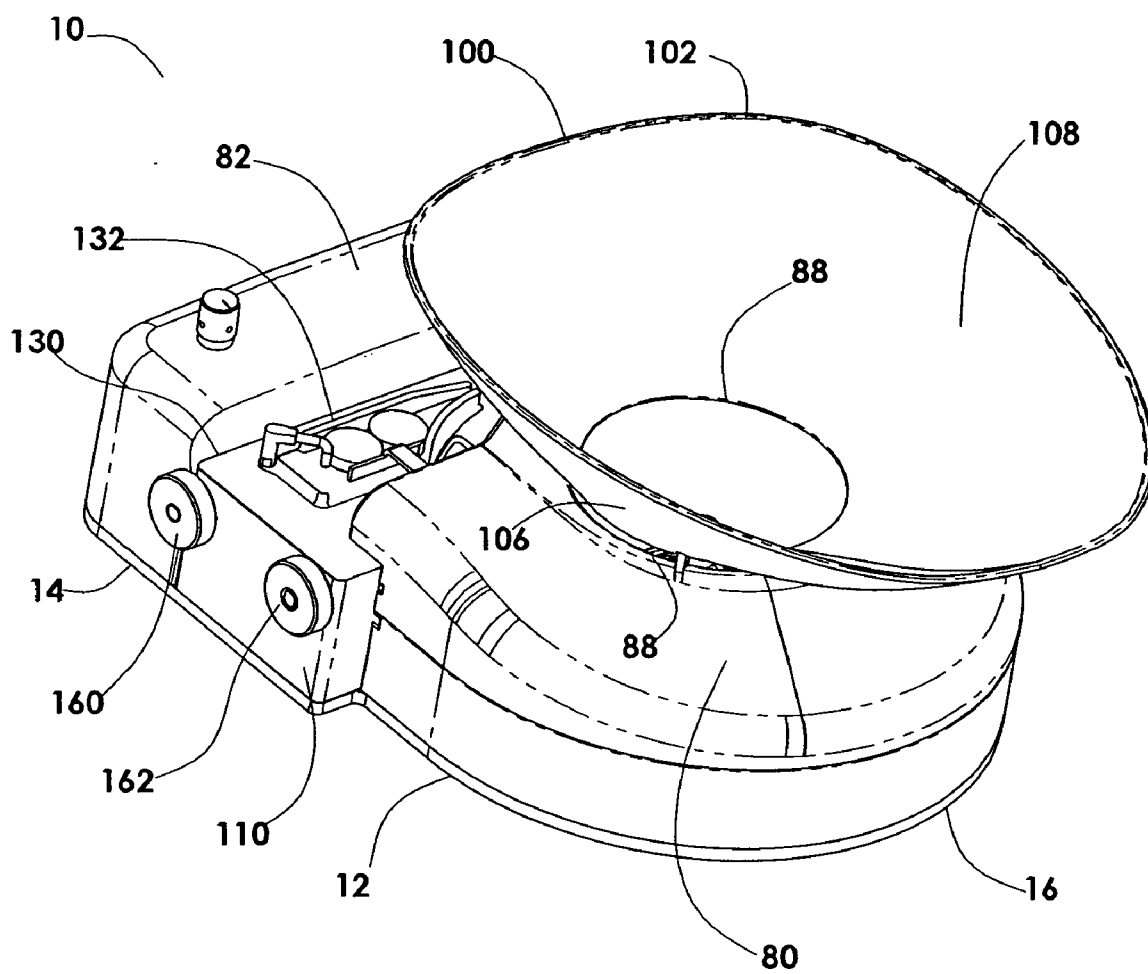
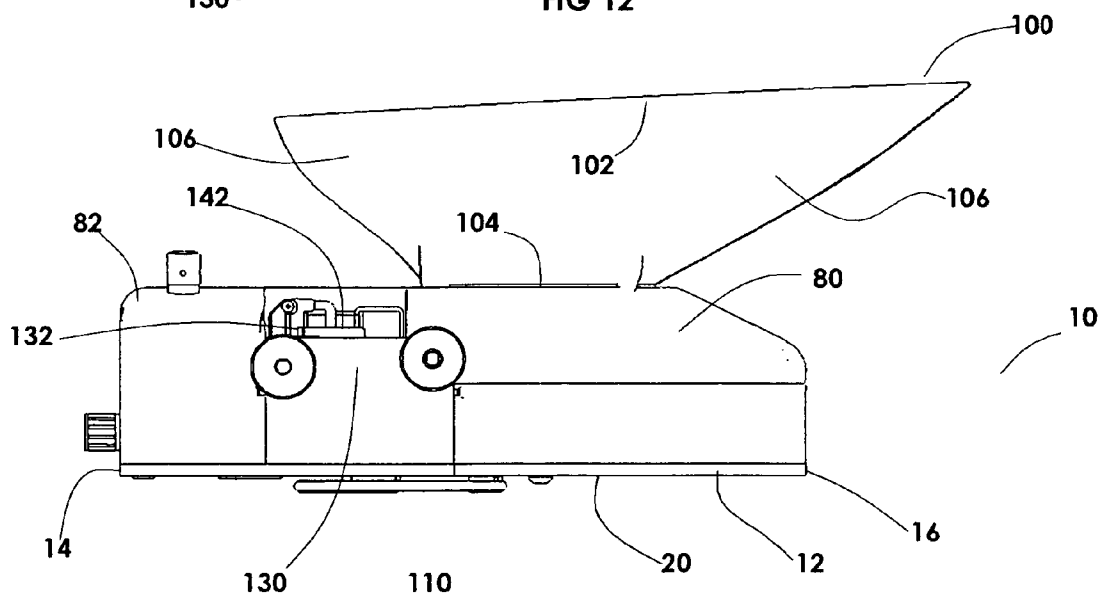
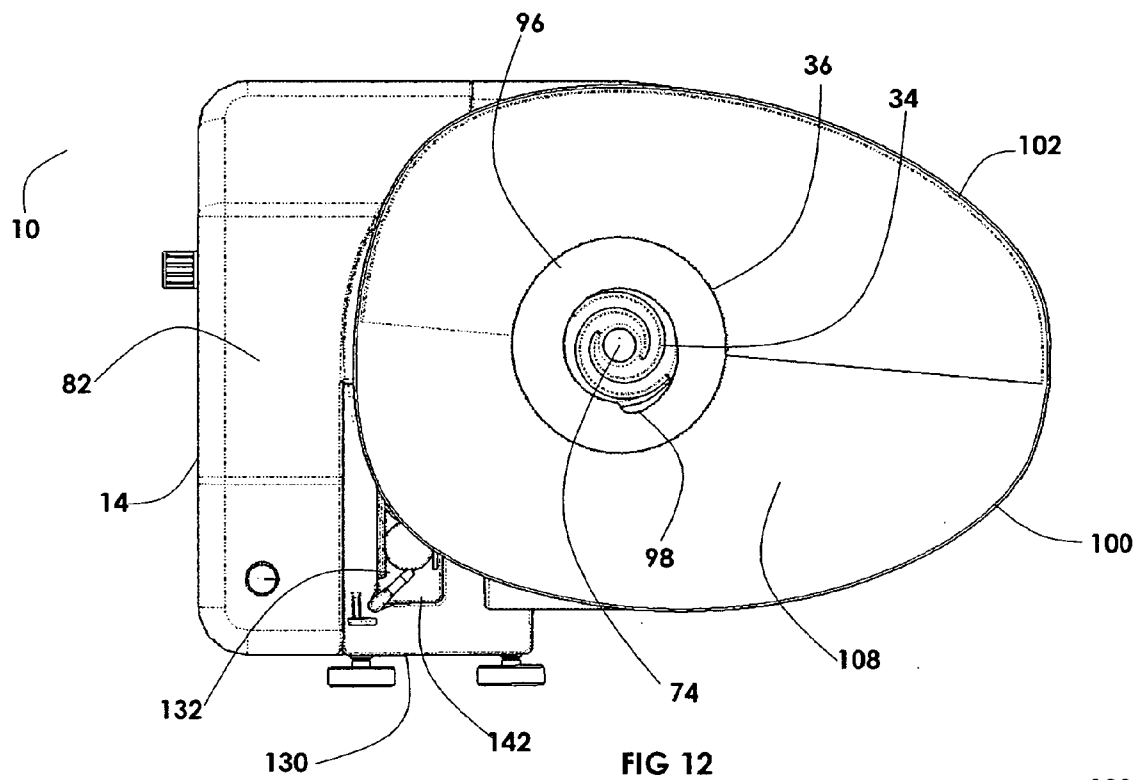
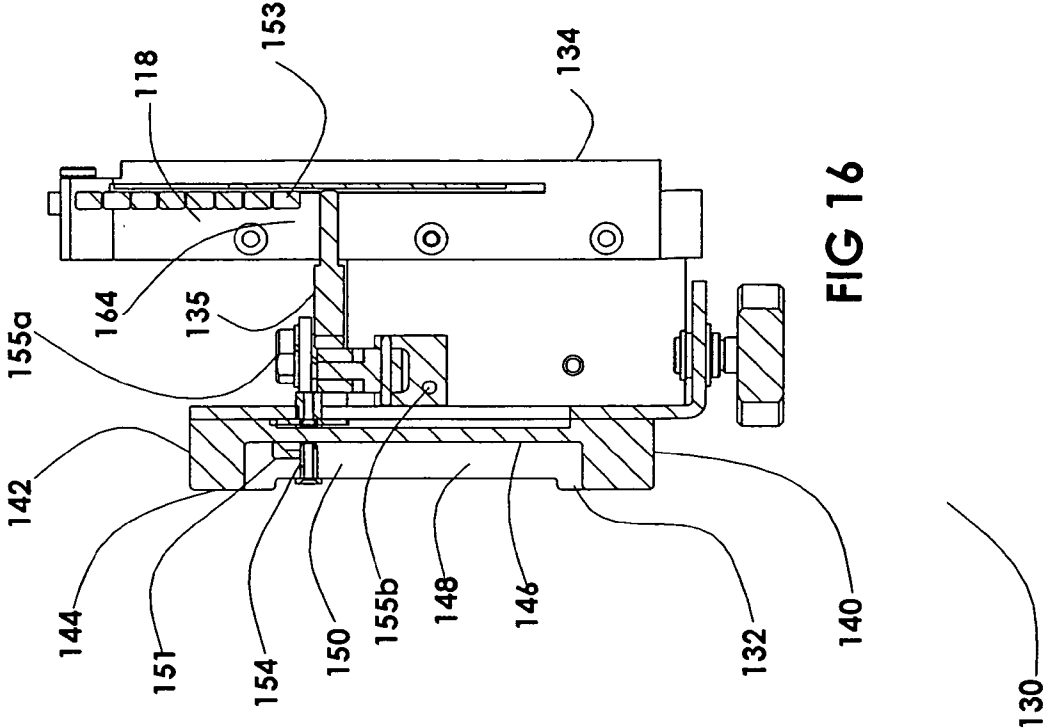
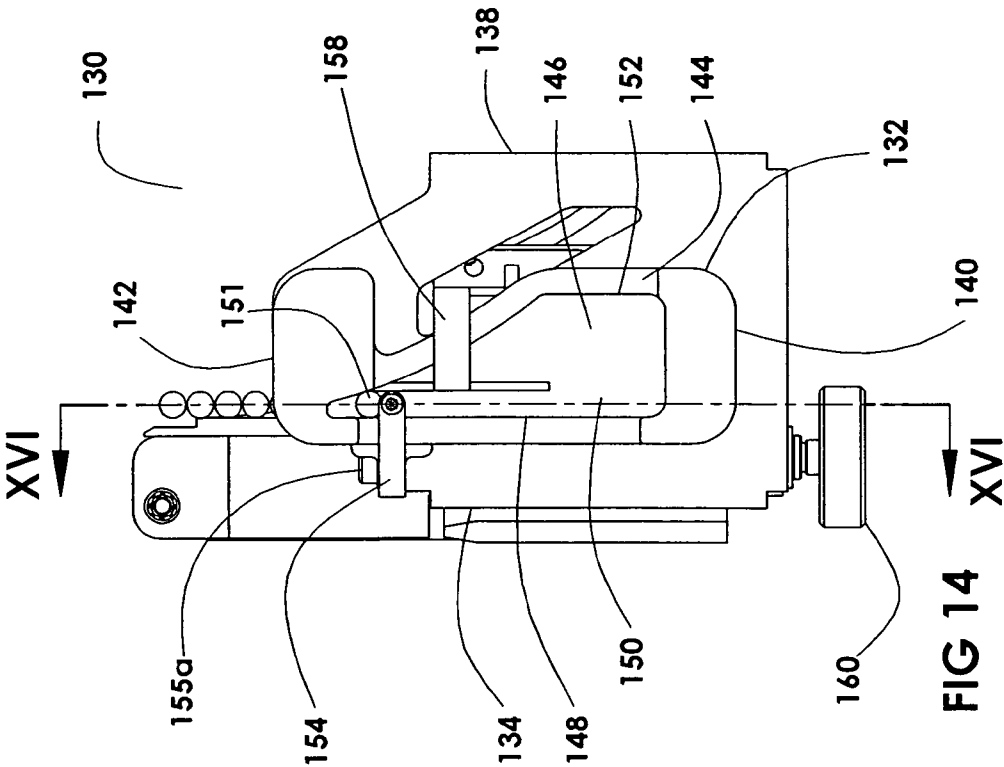


FIG. 11





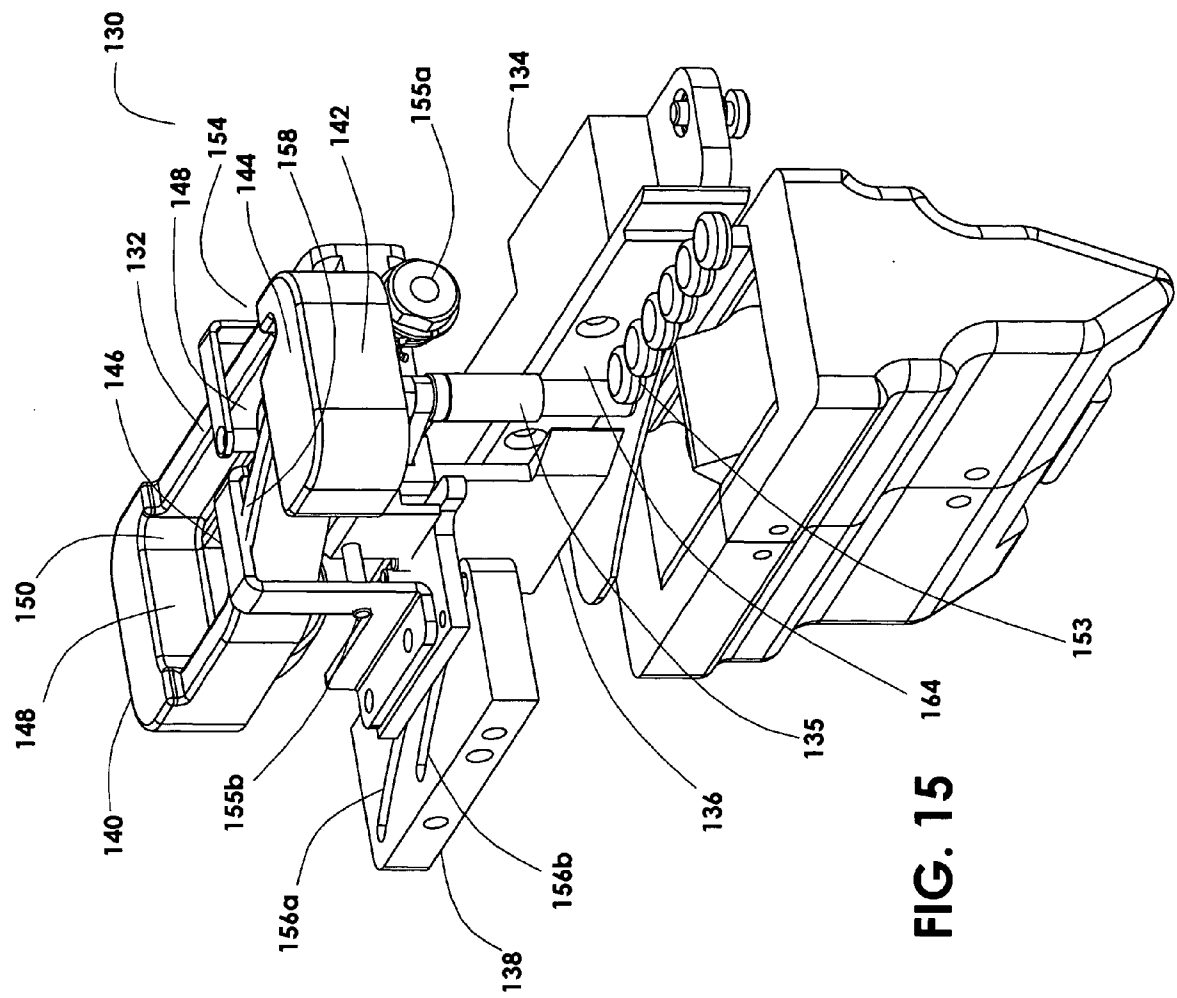


FIG. 15

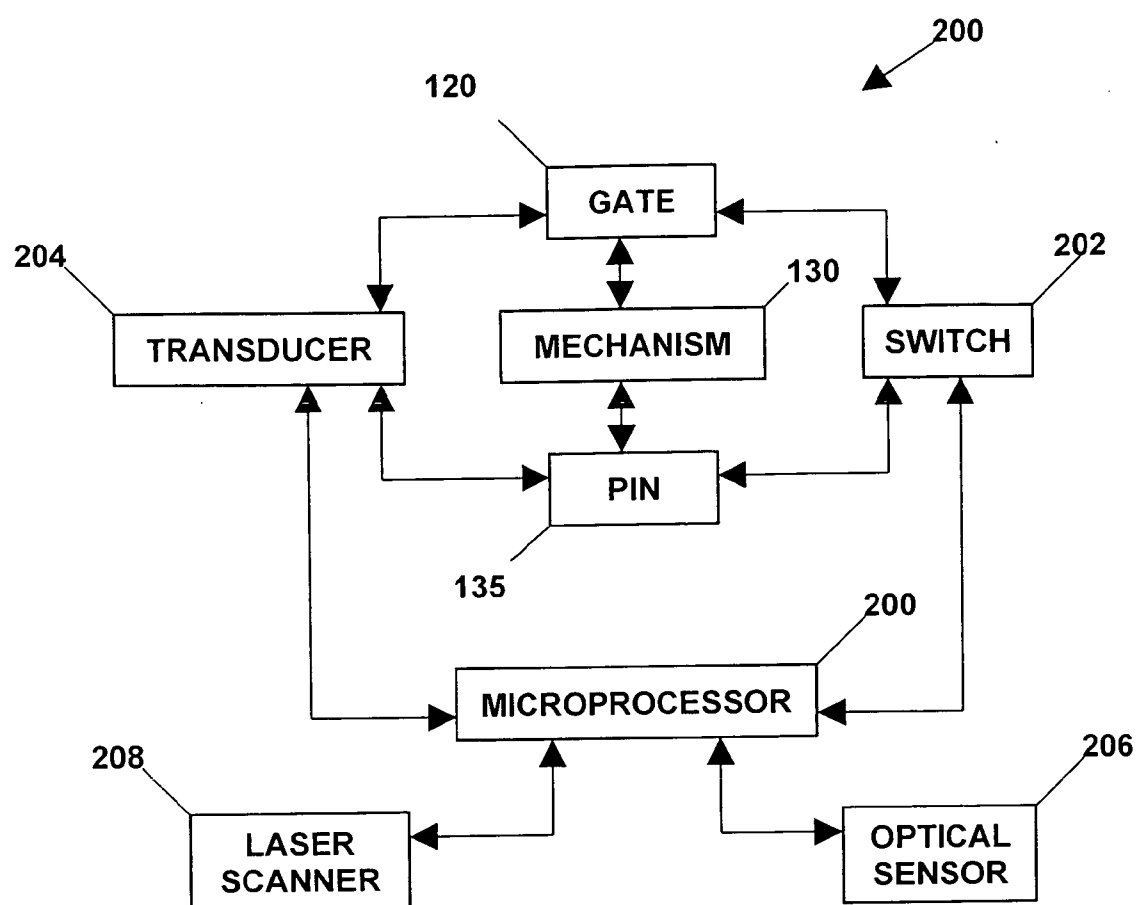


FIG. 17

## "DISPENSER, SYSTEM AND METHOD FOR DISPENSING PILLS"

### BACKGROUND OF THE INVENTION

**[0001]** The present invention generally relates to a dispenser, a system and a method for dispensing pills. More specifically, the present invention relates to a dispenser, a system and a method for dispensing pills from a funnel into a container for distributing the pills to a user and/or to a customer. The funnel may be located adjacent to a top side of a plate having a ridge. The plate may be rotated in a first rotational direction for moving the pills outwardly through the notch of the funnel via the ridge onto a ring. The ring may be rotated in a second rotational direction to move and/or to transfer the pills from the ring into a pocket within the dispenser. The dispenser may have a pin adjacent to a gate for preventing the pills from entering the pocket of the dispenser. Arms of the configuration mechanism may be connected to the pin within the gate for positioning the pin based on the configuration of the pills. The dispenser may be adjusted to and/or may be customized to correspond to the shape of and/or to the size of the pills for dispensing the pills from the funnel into the gate of the dispenser.

**[0002]** It is generally known that, for example, prescription drug pills (hereinafter "the pills") are dispensed from an interior of a tray of a pill dispenser into a container for packaging and/or for storing the pills within the container. Traditionally, a bottom wall of the tray has a number of holes sized to receive pills of a first shape and/or a first size. The number of holes may be, for example, ten, twenty or thirty. A plate which is located adjacent to the bottom wall of the pill dispenser moves between a closed position and an open position to release a portion of the pills into a funnel within the pill dispenser. A nozzle of the funnel may be inserted into an interior of the container for dispensing the pills within the funnel into the interior of the container.

**[0003]** However, moving the plate between the open position and the closed position may damage and/or may destroy one or more pills which may be passing through the holes of the tray. The pills which are damaged and/or are destroyed by the tray and/or the plate may leave a residue of a composition of the pills on the tray, on the funnel and/or in the container. As a result, the pill dispenser may be contaminated from the residue of the pills and/or must be cleaned to remove the residue of the pills from the dispenser. Traditionally, a tool is required for dismantling the pill dispenser to clean and/or to remove the residue from the pill dispenser. As a result, dismantling and/or cleaning the pill dispenser may be costly, inefficient and/or time consuming.

**[0004]** In the closed position, the plate prevents the pills from exiting the interior of the tray via the holes. In the open position, a number of the pills are transferred from the interior of the tray into the funnel via one or more of the holes of the tray. The number of the pills transferred from the tray into the funnel corresponds to the number of holes in the tray. The plate moves from the open position to the closed position for preventing additional pills from exiting the tray via the holes of the tray. The pill dispenser determines a total number of pills dispensed into the container via the number of holes within the tray and/or a number of cycles that the plate has moved between the closed position and the open position. However, more than one pill may pass through one or more holes in the plate when the plate is located in the open position. The pill dispenser may incorrectly calculate the total

number of pills dispensed into the container if more than one of the pills are transferred into the funnel via at least one of the holes of the tray. As a result, the pill dispenser may inaccurately and/or may inconsistently dispense the total number of pills into the container.

**[0005]** Often, the number of pills dispensed into the container correspond to, are based on and/or may be associated with a prescription from a medical service provider for distributing the pills to a customer of and/or a patient of the medical service provider. The prescription identifies the total number of the pills which must be consumed by and/or must be distributed to the customer and/or the patient for treating a medical condition of the customer and/or of the patient. The total number of the pills which are dispensed into the container and/or distributed to the customer and/or to the patient must correspond to the number of pills identified in the prescription. An error in the total number of pills dispensed into the container and/or distributed to the customer and/or to the patient may cause bodily harm to, injury to and/or death of the customer and/or the patient. Therefore, the pill dispenser must accurately and must consistently count the number of pills being dispensed into the container from the pill dispenser to effectively treat the medical condition of the customer and/or of the patient.

**[0006]** A shape of and/or a size of each of the holes within the tray corresponds to and/or is based on the first size and/or the first shape of the pills to be dispensed via the pill dispenser. Often, the pill dispenser may be required to count and/or to dispense pills having a second shape and/or a second size. However, the holes of the tray may not be sized to receive the pills having the second shape and/or the second size. As a result, the tray may need to be replaced to provide holes which are sized to receive the pills having the second shape and/or the second size. However, configuring the pill dispenser to receive, to count and/or to dispense pills having a second size and/or a second shape may be costly, inefficient and/or time consuming.

**[0007]** A need, therefore, exists for a dispenser, a system and a method for dispensing pills. Additionally, a need exists for a dispenser, a system and a method for dispensing pills which may dispense pills having different shapes and/or different sizes without having to replace one or more elements of the dispenser. Further, a need exists for a dispenser, a system and a method for dispensing pills which may accurately and/or consistently identify, determine and/or measure a total number of pills dispensed from the dispenser. Still further, a need exists for a dispenser, a system and a method for dispensing pills which may not damage and/or may not destroy one or more pills by transferring pills from a funnel into a gate of the dispenser. Moreover, a need exists for a dispenser, a system and a method for dispensing pills which may not require a tool for dismantling the dispenser to clean an interior of the dispenser. Furthermore, a need exists for a dispenser, a system and a method for dispensing pills which may display a number of pills transferred into a gate of the dispenser for dispensing the number of pills into a container. Additionally, a need exists for a dispenser, a system and a method for dispensing pills which may provide a funnel with a notch and a plate with a ridge for transferring a pill from the funnel to a gate within the dispenser.

### SUMMARY OF THE INVENTION

**[0008]** The present invention generally relates to a dispenser, a system and a method for dispensing pills. More

specifically, the invention relates to a dispenser, a system and a method for dispensing pills which may rotate a disk having a ridge in a first rotational direction to move the pills from a funnel via a notch of the funnel. The notch of the funnel may be sized to transfer the pills which may have different shapes and/or different sizes from the funnel onto a top side of the disk. A ring adjacent to the disk may be rotated in a second rotational direction for moving and/or for transferring the pills received from the funnel and/or the disk into a gate within the dispenser via the ring. The dispenser may have a configuration mechanism for receiving a pill to determine, to identify and/or to measure a configuration of the pill. The pill may be located between arms of the configuration mechanism and wall of a basket of the configuration mechanism to determine the configuration of the pill. A pin may be located at a position adjacent to the gate within the dispenser which may correspond to and/or may be based on the configuration of the pill within the configuration mechanism. The pin may prevent more than one of the pills from entering the gate and/or a pocket of the dispenser.

**[0009]** It is, therefore, an advantage of the present invention to provide a dispenser, a system and a method for dispensing pills which may rotate a plate in a first rotational direction and/or a ring in a second rotational direction to transfer a number of pills into a gate of dispenser from a funnel of the dispenser.

**[0010]** Another advantage of the present invention is to provide a dispenser, a system and a method for dispensing pills which may rotate a plate having a ridge for moving the pills from a funnel into a gate of the dispenser via an opening and/or a notch of the funnel.

**[0011]** And, another advantage of the present invention is to provide a dispenser, a system and a method for dispensing pills which may detect, may measure and/or may count a number of pills located within a gate of the dispenser for dispensing the number of pills to a container.

**[0012]** Yet another advantage of the present invention is to provide a dispenser, a system and a method for dispensing pills which may display a number of pills located within a gate and/or a pocket of the dispenser for dispensing the number of pills into a container.

**[0013]** A further advantage of the present invention is to provide a dispenser, a system and a method for dispensing pills which may move a pill from a funnel into a gate of the dispenser via an opening of the funnel and/or a ridge on a plate.

**[0014]** Moreover, an advantage of the present invention is to provide a dispenser, a system and a method for dispensing pills which may adjust to receive, to transfer, to count and/or to dispense pills having different sizes and/or different shapes.

**[0015]** And, another advantage of the present invention is to provide a dispenser, a system and a method for dispensing pills which may have a configuration mechanism for receiving a pill to identify and/or to determine a size of and/or a shape of the pills via the pill within the configuration mechanism.

**[0016]** Yet another advantage of the present invention is to provide a dispenser, a system and a method for dispensing pills which may move a pin to a location within the dispenser corresponding to and/or based on a size and/or a shape of the pills.

**[0017]** Another advantage of the present invention is to provide a dispenser, a system and a method for dispensing

pills which may be programmed to transfer a number of pills from a gate of the dispenser into a container.

**[0018]** Yet another advantage of the present invention is to provide a dispenser, a system and a method for dispensing pills which may position a pin within an interior of the dispenser to prevent a pill within the interior from remaining within the interior of the dispenser and/or from blocking a first end of a gate of the dispenser.

**[0019]** A still further advantage of the present invention is to provide a dispenser, a system and a method for dispensing pills which may have a neck and/or a head located within a funnel for transferring pills from the funnel to a top side of a ring via an opening and/or a notch of the funnel.

**[0020]** Moreover, an advantage of the present invention is to provide a dispenser, a system and a method for dispensing pills which may accurately, effectively and/or consistently transfer a number of pills from a funnel into a gate of the dispenser.

**[0021]** Additional features and advantages of the present invention are described in, and will be apparent from, the detailed description of the presently preferred embodiments and from the drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0022]** FIG. 1 illustrates a perspective view of a dispenser for dispensing pills in an embodiment of the present invention.

**[0023]** FIG. 2 illustrates a top plan view of a dispenser for dispensing pills in an embodiment of the present invention.

**[0024]** FIG. 3 illustrates a top plan view of a dispenser for dispensing pills in an embodiment of the present invention.

**[0025]** FIG. 4 illustrates a cross-sectional view generally taken along line IV-IV of the dispenser in FIG. 3 in an embodiment of the present invention.

**[0026]** FIG. 5 illustrates a perspective view of a dispenser for dispensing pills in an embodiment of the present invention.

**[0027]** FIG. 6 illustrates a top plan view of a dispenser with a funnel for dispensing pills in an embodiment of the present invention.

**[0028]** FIG. 7 illustrates a cross-sectional view generally taken along line VII-VII of the dispenser in FIG. 6 in an embodiment of the present invention.

**[0029]** FIG. 8 illustrates a perspective view of a dispenser with a funnel for dispensing pills in an embodiment of the present invention.

**[0030]** FIG. 9 illustrates a perspective view of a dispenser with a funnel for dispensing pills in an embodiment of the present invention.

**[0031]** FIG. 10 illustrates a top plan view of a dispenser with a funnel for dispensing pills in an embodiment of the present invention.

**[0032]** FIG. 11 illustrates a perspective view of a dispenser with a hopper for dispensing pills in an embodiment of the present invention.

**[0033]** FIG. 12 illustrates a top plan view of a dispenser with a hopper for dispensing pills in an embodiment of the present invention.

**[0034]** FIG. 13 illustrates a side plan view of a dispenser with a hopper for dispensing pills in an embodiment of the present invention.

**[0035]** FIG. 14 illustrates a top plan view of a configuration mechanism for dispensing pills in an embodiment of the present invention.

[0036] FIG. 15 illustrates a perspective view of a configuration mechanism for dispensing pills in an embodiment of the present invention.

[0037] FIG. 16 illustrates a cross-sectional view generally taken along line XVI-XVI of the dispenser in FIG. 14 in an embodiment of the present invention.

[0038] FIG. 17 illustrates a block diagram for a system for dispensing pills in an embodiment of the present invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0039] The present invention generally relates to a dispenser, a system and a method for dispensing pills. The dispenser may have a funnel with an opening for moving and/or for transferring the pills from the funnel to a first disk. A second disk may be connected to the first disk and/or may be located adjacent to the first disk. The first disk may have a ridge with a spiral configuration and/or a top surface of the first disk for moving and/or for transferring the pills to a top surface of the second disk via the opening of the funnel. The first disk and/or second disk may be turned and/or may be rotated in a first rotational direction for transferring a pill to the top surface of the first disk and/or the second disk via the opening of the funnel. The second disk may have a notch for transferring the pills from the first disk and/or the funnel to a ring. The ring may be turned and/or may be rotated in a second rotational direction for transferring the pills to a passage via a gate and/or a pocket which may be adjacent to the second disk.

[0040] The dispenser may have a configuration mechanism for determining and/or for measuring a configuration of one of the pills. One of the pills may be inserted between arms of the configuration mechanism and/or an interior wall of the configuration mechanism to determine the configuration of the pills. A pin may be connected to the configuration mechanism and/or to the arms and/or may be located at a position within the interior of the dispenser corresponding to and/or based on the configuration of the pills. The pin and/or the gate of the dispenser may prevent one or more pills from entering the pocket at a time. The number of pills within the passage of the dispenser may be released into and/or may be dispensed into a container which may be located adjacent to the passage of the dispenser.

[0041] Referring now to the drawings wherein like numerals refer to like parts, FIGS. 1-7 and 10-13 illustrate a dispenser 10 for dispensing pills 11 in an embodiment of the present invention. A base 12 of the dispenser 10 may have a first end 14 and/or a second end 16. The second end 16 of the base 12 is located opposite to the first end 14 of the base 12. The base 12 may have a top side 18 and/or a bottom side 20. The bottom side 20 is located opposite to the top side 18 of the base 12. The top side 18 of the base 12 may have a compartment 22 and/or a first ring 24. The compartment 22 and/or the first ring 24 may be adjacent to the first end 14 of the base 12 and/or to the second end 16 of the base 12, respectively. Further, a drive unit 26, first cams 28a, 28b and/or a second cam 29 may be connected to the base 12 of the dispenser 10 as shown in FIGS. 4 and 7. The first cams 28a, 28b and/or the second cam 29 may be connected to the drive unit 26 for dispensing the pills 11 from the dispenser 10. Still further, the dispenser 10 may have a second ring 30, a first disk 32, a second disk 34 and/or a funnel 36 for transferring the pills 11 from the funnel 36 onto the first disk 30.

[0042] The dispenser 10 may dispense the pills 11 into a container (not shown in the figures) for distribution to a user (not shown in the figures) as shown in FIGS. 3, 8 and 9. In an embodiment, the pills 11 may be, for example, a medicinal tablet containing a dose of, for example, a prescription medication, a vitamin, a herbal and/or the like. In an embodiment, the user may be a patient of a medical service provider, a pharmacy, a hospital and/or the like. In an embodiment, the user may be a drug manufacturer and/or a drug distributor which may package the pills for the medical service provider, the pharmacy and/or the hospital. The present invention should not be deemed as limited to a specific embodiment of the pills 11 and/or of the user of the dispenser 10.

[0043] Each of the pills 11 may have a shape, such as, for example, an oval shape, a capsule shape, a spherical shape, a disk shape, and/or the like. In an embodiment, each of the pills 11 may have a size between a range of four (4) millimeters and one (1) centimeter. The shape and/or the size of each of the pills 11 may define a configuration for each of the pills 11. In an embodiment, each of the pills 11 may have the same shape, the same size and/or the same configuration. It should be understood that the configuration, the shape and/or the size of each of the pills 11 may be any configuration, any shape and/or any size as known to one having ordinary skill in the art.

[0044] The first ring 24 may be connected to and/or may be attached to the base 12 via fasteners 44a-44e as shown in FIG. 5. The fasteners 44a-44e may be, for example, bolts, screws, welding, pins and/or the like. The first ring 24 may have a top side 38 and/or a bottom side 40. The bottom side 40 of the first ring 24 is located opposite to the top side 38 of the first ring 24. The bottom side 40 of the first ring 24 may be adjacent to the top side 18 of the base 12 and/or the second end 16 of the base 12. The first ring 24 may have an orifice 41 which may extend from the top side 38 through the first ring 24 to the bottom side 40 of the first ring 24. It should be understood that the fasteners 44a-44e may be any fasteners which may connect the first ring 24 to the base 12 as known to one having ordinary skill in the art.

[0045] A lip 42 may be connected to and/or may be attached to the top side 38 of the first ring 24. The lip 42 may extend outwardly with respect to the top side 38 of the first ring 24 and/or the top side 18 of the base 12 as shown in FIGS. 4 and 7. The lip 42 and the top side 38 of the first ring 24 may define an interior 46 of the first ring 24. The interior 46 of the first ring 24 may be sized to receive the second ring 30 for connecting the second ring 30 to the first ring 24 and/or the base 12. As a result, the second ring 30 may be insertable into the interior 46 of the first ring 24 for connecting the second ring 30 to the base 12. In an embodiment, the lip 42 may be integrally formed with the first ring 24.

[0046] The second ring 30 may have a top side 48 and/or a bottom side 50 as shown in FIGS. 2-4 and 9. The bottom side 50 of the second ring 30 is located opposite to the top side 48 of the second ring 30. The second ring 30 may have circumference 52 and/or an opening 54 extending from the top side 48 through the second ring 30 to the bottom side 50 of the second ring 30. The opening 54 may be located within and/or may be centered with respect to the circumference 52 of the second ring 30. The top side 48 of the second ring 30 may angle upwardly, may taper upwardly and/or may incline from the circumference 52 of the second ring 30 to the opening 54 of the second ring 30.

[0047] The opening 54 of the second ring 30 may be sized to receive the first disk 32 for connecting the first disk 32 to the second ring 30, to the first ring 24 and/or to the base 12. The drive unit 26 may be connected to and/or may be attached to the first cams 28a, 28b and/or the second cam 29 as shown in FIGS. 4 and 7. The drive unit 26 may be activated to rotate and/or to turn the first cams 28a, 28b and/or the second cam 29 in a first direction and/or in a second direction. The first cams 28a, 28b and/or the second cam 29 may extend outwardly with respect to the top side 18 of the base 12.

[0048] The second ring 30 may be inserted into the interior 46 of the first ring 24 as shown in FIGS. 2-4, 6 and 7. The bottom side 50 and/or the circumference 52 of the second ring 30 may be adjacent to the lip 42 of the first ring 24 and/or to the top side 38 of the first ring 24. The second ring 30 may be located adjacent to the interior 46 of the first ring 24. The first cams 28a, 28b and/or the second cam 29 may extend into the orifice 41 of the first ring 24, into the interior 46 of the first ring 24 and/or into the opening 54 of the second ring 30. The first cams 28a, 28b of the drive unit 26 may be connected to and/or may be attached to the bottom side 50 of the second ring 30. As a result, the second ring 30 may be attached to and/or may be connected to the drive unit 26 via the first cams 28a, 28b.

[0049] The drive unit 26 may rotate and/or may turn the first cams 28a, 28b in the first direction and/or in the second direction within the interior 46 of the first ring 24. In an embodiment, the drive unit 26 may continuously rotate the second ring 30 in the first direction via the first cams 28a, 28b. As a result, the second ring 30 may turn and/or may rotate in the first direction and/or in the second direction via the first cams 28a, 28b and/or the drive unit 26. In an embodiment, the drive unit 26 may turn or may rotate the second ring 30 at a rotational speed between a range of sixty (60) revolutions per minute (hereinafter "RPM") and ninety RPM. In an embodiment, the first direction may be a direction which may be opposite to the second direction. For example, the first direction may be a clockwise direction and the second direction may be a counter-clockwise direction.

[0050] The first disk 32 may have a top side 56 and/or a bottom side 58 as shown in FIGS. 2-4 and 6-9. The bottom side 58 of the first disk 32 is located opposite to the top side 56 of the first disk 32. The first disk 32 may have a circumference 59 and/or a rim 60 which may extend outwardly with respect to the top side 56 of the first disk 32. The top side 56 of the first disk 32 and the rim 60 of the first disk 32 may define an interior 64 of the first disk 32. The rim 60 may have an opening 64 extending from the interior 62 through the rim 60 to the circumference 59 of the first disk 32. In an embodiment, the opening 64 may be perpendicular or may be tangent with respect to the first rotational direction and/or the second rotational direction.

[0051] The second disk 34 may have a top side 66 and/or a bottom side 68. The bottom side 68 of the second disk 34 is located opposite to the top side 66 of the second disk 34. The bottom side 68 of the second disk 34 may be attached to, may be adhered to and/or may be connected to the top side 56 of the first disk 32. In an embodiment, the second disk 34 may be integrally formed with the first disk 32. The second disk 34 may be located within the rim 60 of the first disk 32 and/or within the interior 64 of the first disk 32. In an embodiment, the second disk 34 may be centered with respect to the circumference 59 of the first disk 32.

[0052] The second disk 34 may have a circumference 70, a neck 72 and/or a head 74. The neck 72 may be connected to, may be adhered to and/or may be attached to the top side 66 of the second disk 34. In an embodiment, the neck 72 may be centered with respect to the circumference 70 of the second disk 34. The head 74 may be attached to, may be adhered to and/or may be connected to the second disk 34 via the neck 72. As a result, the neck 72 may be located between the head 74 and the top side 66 of the second disk 34. The top side 66 of the second disk 34 may have ridges 76a, 76b which may extend outwardly with respect to the top side 66 of the second disk 34. In an embodiment, the ridges 76a, 76b may spiral outwardly on the top side 66 of the second disk 34 from the neck 72 to the circumference 70 of the second disk 34. In an embodiment, the neck 72, the head 74 and/or the ridges 76a, 76b may be integrally formed with the second disk 34.

[0053] The second disk 34, the neck 72, the head 74 and/or the ridges 76a, 76b may be made from a material, such as for example, polyurethane, polyethylene and/or the like. In an embodiment, the material of the second disk 34, the neck 72, the head 74 and/or the ridges 76a, 76b may have a hardness in a range of sixty (60) durometer and seventy (70) durometer for preventing the pills 11 from binding to and/or from adhering to the second disk 34, the neck 72, the head 74 and/or the ridges 76a, 76b of the second disk 34. In an embodiment, the head 74 may have an apex 78 which may be located opposite to the neck 72 of the second disk 34. The apex 78 may prevent the pills 11 from binding to and/or from adhering to the head 74 of the second disk 34. The apex 78 of the head 74 may move and/or may rotate the pills 11 in the first direction and/or in the second direction as the drive unit 26 may rotate and/or may turn the first disk 32 and/or the second disk 34. The present invention should not be deemed as limited to a specific embodiment of the material of the second disk 34 and/or of the hardness of the material of the second disk 34.

[0054] The opening 54 of the second ring 30 may be sized to receive the first disk 32 for connecting and/or for attaching the first disk 32 and/or the second disk 34 to the second ring 30, the first ring 24 and/or the base 12. The first disk 32 may be inserted into the opening 54 of the second ring 30 for connecting the first disk 32 and/or the second disk 34 to the first ring 24 and/or to the base 12. As a result, the circumference 59 of and/or the bottom side 58 of the first disk 32 may be adjacent to the first ring 30, the second ring 24 and/or the base 12. The first disk 32 may be located between the second disk 34 and the second ring 30, the first ring 24 and/or the base 12.

[0055] The second cam 29 of the drive unit 26 may be attached to, may be secured to and/or may be connected to the bottom side 58 of the first disk 32 for rotating and/or for turning the first disk 32 in the second direction as shown in FIGS. 4 and 7. The drive unit 26 may be activated to turn and/or to rotate the first disk 32 and/or the second disk 34 in the second direction via the second cam 29. In an embodiment, the drive unit 26 and the second cam 29 may be, for example, a Geneva drive unit for turning and/or for rotating the first disk 32 and/or the second disk 34 in intermittent cycles. A number of the intermittent cycles, such as, for example, three (3) cycles, five (5) cycles or seven (7) cycles may turn and/or may rotate the first disk 32 and/or the second disk 34 in a single revolution or three hundred and sixty (360) degrees. As a result, the first disk 32 and/or the second disk 34 may not be continuously rotated in the second direction by the drive unit 26 and/or by the second cam 29.

[0056] The dispenser 10 may have a housing 80 and/or a lid 82 for connecting to and/or for attaching to the top side 18 of the base 12. The lid 82 may be sized to attach to and/or to connect to the compartment 22 on the top side 18 of the base 12 as shown in FIGS. 1 and 11-13. As a result, the lid 82 may cover and/or may enclose the compartment 22 of the base 12 to define an interior 84 of the compartment 22. The housing 80 may be sized to connect to and/or to attach to the top side 18 of the base 12 between the compartment 22 and the second end 16 of the base 12. As a result, the housing 80 may cover and/or may enclose the first ring 24, the second ring 30, the first disk 32 and/or the second disk 34 between the housing 80 and top side 18 of the base 12. As a result, the base 12 and the housing 80 may define an interior 86 of the base 12. The housing 80 may have a hole 88 which may be located adjacent to the second disk 34 and/or the first disk 32 of the dispenser 10 as shown in FIGS. 1 and 11. As a result, the first disk 32, the second disk 34 and/or the interior 86 of the base 12 may be accessed from a point exterior with respect to the housing 80 via the hole 88 of the housing 80.

[0057] The funnel 36 may have a top end 90 and/or a bottom end 92 as shown in FIGS. 7-9. The bottom end 92 of the funnel 36 is located opposite to the top end 90 of the funnel 36. The funnel 36 may have exterior walls 94 which may define an interior 96 of the funnel 36. The funnel 36 may have a notch 98 at the bottom end 92 of the funnel 36. The notch 98 may taper outwardly from the bottom end 92 towards the top end 90 of the funnel 36. The notch 98 of the funnel 36 may be sized to receive one of the pills 11 which may be located within the interior 96 of the funnel 36. As a result, the pills 11 which may have different configurations, different shapes and/or different sizes may pass through the notch 98 to exit from and/or for release from the interior 96 of the funnel 36.

[0058] The bottom end 92 of the funnel 36 may be inserted into the opening 88 of the housing 80 for attaching, for securing and/or for connecting the funnel 92 to the base 12. As a result, the exterior walls 94 of the funnel may contact and/or may abut the housing 80 between the top end 90 and the bottom end 92 of the funnel 36. The bottom end 92 of the funnel 36 may be located within the interior 86 of the base 80. As a result, the top end 90 of the funnel 36 may extend outwardly with respect to the interior 96 of the funnel 36. A total number of pills 11 may be added to and/or may be inserted into the interior 96 of the funnel 36 for transferring and/or for moving the pills 11 into the interior 88 of the base 12 via the notch 98 of the funnel 36. As a result, the interior 96 of the funnel 36 may be filled by the total number of pills 11 for dispensing the pills 11 via the dispenser 10.

[0059] The notch 98 of the funnel and a distance D between the bottom end 92 and the top side 66 of the second disk 34 may be sized to receive the pills 11 from the interior 96 of the funnel 36. In an embodiment, the distance D between the bottom end 92 of the funnel and the top side 66 of the second disk 34 may be in a range between one and a half (1.5) millimeters (hereinafter "mm") and two (2) mm. As a result, the pills 11 may exit, may be transferred from and/or may be moved from the interior 96 of the funnel 36 into the interior 62 of the first disk 32 via the notch 98 of the funnel 36. It should be understood that the total number of pills 11 located within the funnel 36 may be any total number of pills 11 which may be stored within the funnel 36 as known to one having ordinary skill in the art.

[0060] In an embodiment, the dispenser 10 may have a hopper 100 for connecting to and/or for attaching to the

funnel 36 as shown in FIGS. 11-13. The hopper 100 may have a top end 102 and a bottom end 104. The bottom end 104 of the hopper 100 is located opposite to the top end 102. The hopper 100 may have exterior walls 106 defining an interior 108 of the hopper 100. The bottom end 104 of the hopper 100 may be inserted into the top end 90 of the funnel 36. As a result, the exterior walls 106 of the hopper 100 may contact and/or may abut the funnel 36. The bottom end 104 of the hopper 100 may be located within the interior 96 of the funnel 36. As a result, the top end 102 of the hopper 100 may extend outwardly with respect to the top end 90 of the funnel 36. An additional number of pills 11 may be added to the interior 108 of the hopper to increase the total number of pills 11 which may be transferred from the funnel 36 into the interior 88 of the base 12 via the notch 98 of the funnel 36. As a result, the total number of pills 11 which may be dispensed from the dispenser 10 may be increased by the additional number of pills 11 placed within or stored within the interior 108 of the hopper 100.

[0061] The second cam 29 of the drive unit 26 may turn and/or may rotate the first disk 32 and/or the second disk 34 in the intermediate cycles. The first disk 32, the second disk 34, the neck 72 and/or the head 74 may rotate at the intermediate cycles in the second direction via the second cam 29. As a result, the pills 11 within the interior 96 of the funnel 36 may be rotated, may be turned and/or may be moved in the second direction at the intermediate cycles by the second disk 34, the neck 72 and/or the head 74. At an end of each of the intermediate cycles, rotation of the first disk 32 and/or the second disk 34 may be terminated and/or may be stopped by the second cam 29 of the drive unit 26. As rotation of the first disk 32 and/or of the second disk 34 may be terminated by the drive unit 26, inertia and/or rotation forces of each of the pills 11 within the funnel 36 may move and/or may rotate the pills 11 within the funnel in the second direction. As a result, the pills 11 within the interior 96 of the funnel 36 may continue to rotate in the second direction as the first disk 32 and/or the second disk 34 may be stationary with respect to the funnel 36.

[0062] The ridges 76a, 76b of the second disk 34 may engage, may abut and/or may contact one or more pills 11 within the interior 96 at the bottom end 92 of the funnel 36 as shown in FIGS. 2, 3 and 6-10. The ridges 76a, 76b, the inertia and/or the rotation forces may move and/or may push one or more of the pills 11 inwardly with respect to the notch 98 of the funnel 36. The one of the pills 11 may be moved into and/or may be pushed into the notch 98 of the funnel 36 by the ridge 76, by another one of the pills 11, by the inertia of one of the pills 11 and/or by rotational forces of one of the pills 11. As a result, the pills 11 may exit from, may be released from and/or may be transferred from the interior 96 of funnel 36 onto the top side 56 of and/or into the interior 62 of the first disk 32 via the notch 98 of the funnel 36. In an embodiment, the one of the pills 11 may be transferred from the funnel 36 into the interior 62 of the first disk 32 via the notch 98 of the funnel 36 with each of the intermediate cycles of the second cam 29 and/or at a completion of each of the intermediate cycles. As a result, the interior 62 of the first disk 32 may be filled with, may contain and/or may be occupied by one or more of the pills 11 which may have been transferred from and/or may have been received from the interior 96 of the funnel 36.

[0063] The pills 11 which may be located on the top side 56 of the first disk 32 and/or within the interior 62 of the first disk

**32** may move and/or may rotate in the second direction with each of the intermediate cycles and/or at the completion of each of the intermediate cycles. The inertia of and/or the rotational forces of each of the pills **11** within the interior **62** of the first disk **32** may move and/or may push each of the pills **11** inwardly with respect to the rim **60** on the top side **56** of the first disk **32**. The pills **11** within the interior **62** of the first disk **32** may be moved and/or may be pushed against the rim **60** of the first disk **32** by one or more of the pills within the interior **62** of the first disk **32**. As a result, one or more of the pills **11** within the interior **62** of the first disk **32** may abut and/or may contact the rim **60** of the first disk **32** as the first disk **32** and/or the pills within the interior **62** of the first disk **32** rotates and/or turns in the intermediate cycles via the second cam **29**.

**[0064]** One or more of the pills **11** adjacent to the rim **60** of the first disk **32** may be moved and/or may be pushed into the opening **64** of the rim **60** with each of the intermediate cycles by one or more of the pills **11** within the interior **62** of the first disk **32**, by the inertia of the pills **11** and/or rotational forces of one of the pills **11**. As a result, one of the pills **11** may exit from, may be released from and/or may be moved from the interior **62** of the first disk **32** onto the top side **48** of the second ring **30** via the opening **64** of the rim **60**. One or more of the pills **11** may be transferred from the interior **62** of the first disk **32** to the top side **48** with each of the intermediate cycles by the second cam **29**. As a result, one or more of the pills **11** may be located on and/or may be positioned on the top side **48** of the second ring **30** as the first disk **32** may be rotated and/or may be moved in the intermediate cycles by the second cam **29** in the second direction.

**[0065]** The second ring **30** may be moved and/or may be rotated in the first direction by the first cams **28a**, **28b** of the drive unit **26**. In an embodiment, the drive unit **26** may constantly and/or uniformly rotate the second ring **30** in the first direction via the first cams **28a**, **28b**. As a result, one or more of the pills **11** which may be located on the top side **48** of the second ring **30** may be moved in, may be turned in and/or may be rotated in the first direction with the second ring **30** by the first cams **28a**, **28b** of the drive unit **26**. Inertia and/or rotational forces in the first direction of one or more of the pills **11** on the top side **48** of the second ring **30** may move and/or may push one or more of the pills **11** from the first disk **32** inwardly with respect to the circumference **52** of the second ring **30**.

**[0066]** In an embodiment, the top side **48** of the second ring **30** may be angled downwardly, may taper downwardly and/or may decline from the first disk **32** to the circumference **52** of the second ring **30** for moving and/or for pushing the pills **11** outwardly with respect to the first disk **32** and/or inwardly with respect to the circumference **52** of the second ring **30**. The pills **11** on the top side **48** of the second ring **30** may move into and/or may be transferred into the interior **46** of the first ring **24** by gravitational forces on, by the inertia of and/or the rotational forces of one or more of the pills **11** on the top side **48** of the second ring **30**. One or more of the pills **11** on the top side **48** of the second ring **30** may be moved against, may abut and/or may contact the first lip **42** of the first ring **24** and/or the circumference **52** of the second ring **30**. As a result, one or more of the pills **11** on the top side **48** of the second ring **30** may be located adjacent to the lip **42** of the first ring **24** and/or the circumference **52** of the second ring **30**.

**[0067]** The interior **88** of the base **12** may have a passage **110** for receiving the pills **11** which may be adjacent to the lip **42** on the top surface **48** of the second ring **30** and/or may be located within the interior **46** of the first ring **24** as shown in

FIGS. **1-3**, **5** and **13**. The passage **110** may be connected to and/or may be attached to the first ring **24** of the dispenser **10**. The passage **110** may have a first end **112** and/or second end **114**. The second end **114** of the passage **110** is located opposite to the first end **112** of the passage **110**. Walls **116a**, **116b** of the passage **110** and the top side **18** of the base **12** may define an interior **118** of the passage **110**. In an embodiment, the passage **110** may be integrally formed with the first ring **24** of and/or the base **12** of the dispenser **10**.

**[0068]** The first end **112** of the passage **110** may be adjacent to the circumference **52** of the second ring **30** and/or the interior **46** of the first ring **24** for receiving one or more of the pills **11** from the interior **46** of the first ring **24**. The first end **112** of the passage **110** may be sized to receive one or more of the pills **11** which may be adjacent to the lip **42** of the first ring **24** and/or the circumference **52** of the second ring **30**. The interior **118** of the passage **110** and the interior **46** of the first ring **24** may be sized to receive, to house and/or to store a portion of the total number of pills **11** which may have been stored within and/or may have been located within the interior **96** of the funnel **36**.

**[0069]** A gate **120** may be connected to and/or may be attached to the lip **42** of the first ring **24**, the top side **18** of the base **12** and/or the passage **110** of the base **12** as shown in FIGS. **2**, **3**, **5**, **6** and **10**. The gate **120** may have a first end **122** and/or a second end **124**. The second end **124** of the gate **120** may be located opposite to the first end **122** of the gate **120**. The first end **122** of the gate **120** may be located within the interior **88** of the base **12** and/or may be adjacent to the first end **112** of the passage **110** and/or to the interior **118** of the passage **110**. The gate **120** may move, may slide and/or may rotate with respect to the first end **112** of the passage **112** in the first direction and/or in the second direction. As a result, the first end **122** of the gate **120** may move inwardly or outwardly with respect to the first end **112** of the passage **110** along the lip **42** of the first ring **24** in the first direction and/or in the second direction.

**[0070]** The gate **120** may be moved and/or may be rotated in the first direction and/or in the second direction along the lip **42** of the first ring **24** for moving the gate **120** between an open position and/or a closed position. In the closed position, the gate **120** may be located between the interior **46** of the first ring **24** and the interior **118** of the passage **110**. As a result, the gate **120** may enclose and/or may cover the first end **112** of the passage **110** for preventing, for blocking and/or for stopping one or more pills **11** from entering the interior **118** of the passage **110**.

**[0071]** In an open position, the first end of **122** of the gate **120** may be located between the walls **116** of the gate **120**. As a result, the first end **112** of the passage **110** may be uncovered and/or may be exposed by, and/or may be accessible by the gate **120** in the open position. One or more of the pills **11** may enter, may move to and/or may be pushed into the first end **112** of the passage **110** via the gravitational forces on, the inertia of and/or the rotational forces of one or more of the pills **11** within the interior **46** of the first ring **24** being rotated in the first direction by the drive unit **26**. As a result, one or more of the pills **11** adjacent to the lip **42** of the first ring **24** may be transferred into, may be moved into and/or may be received by the interior **118** of the passage **110** from the first end **112** of the passage **110** via the gate **120** in the open position. In an embodiment, the gate **120** may continuously be located in the open position.

[0072] The dispenser 10 may have a configuration mechanism 130 (hereinafter “the mechanism 130”) for determining, for measuring and/or for identifying the configuration of the pills 11 which may be dispensed from the dispenser 10 as shown in FIGS. 1, 3 and 10-16. The mechanism 130 may have a basket 132, a first platform 134, a movable element 136 and/or a second platform 138 for determining the configuration of the pills 11 to dispense the pills 11 from the funnel 36 via the dispenser 10. The mechanism 130 may prevent more than one of the pills 11 from being transferred through the gate 120 and/or into the interior 118 of the passage 110 at the same time as another one of the pills 11 within the interior 46 of the first ring 24.

[0073] The basket 132 may have a front end 140 and/or a rear end 142. The rear end 142 of the basket 132 is located opposite to the front end 140 of the basket 132. The basket 132 may have a top side 144 and/or a bottom side 146. The bottom side 146 of the basket 132 is located opposite to the top side 144 of the basket 132. The bottom side 146 of the basket 132 may have walls 148 extending outwardly with respect to the top side 144 of the basket 132. The top side 144 of the basket 132 and the walls 148 of the basket 132 may define an interior 150 of the basket 132 for receiving a sample pill 151 (hereinafter “the pill 151”) to determine and/or to identify the configuration of the pills 11. In an embodiment, the configuration of the pill 151 may correspond to the configuration of each of the pills 11 within the interior 96 of the funnel 36. The interior 150 of the basket 132 may have a perimeter 152 which may taper inwardly from the front end 140 to the rear end 142 of the basket 132. The interior 150 of the basket 132 may be sized to receive different pills (not shown in the figures) which may have different configurations, different sizes and/or different shapes than the configuration, the sizes of and/or the shapes of, respectively, of the pills 11 and/or of the pill 151.

[0074] The basket 132 may be attached to and/or may be connected to the housing 80 of the base 12 and/or the top side 18 of the base 12. The passage 110 may be located between the basket 132 and the top side 18 of the base 12. A pin 135 may be attached to and/or may be connected to the bottom side 146 of the basket 132 as shown in FIGS. 14-16. The pin 135 may extend outwardly with respect to the bottom side 146 of the basket 132. The pin 135 may extend into the interior 118 of the passage 110 to prevent more than one of the pills 11 from entering the interior 118 of the passage 110 via the gate 120 and/or the first end 112 of the passage 110. The pin 135 may be located between the gate 120 and the interior 118 of the passage 110 for preventing one or more of the pills 11 from being transferred into the interior 118 of the passage 110 from the interior 46 of the first ring 24 via the gate 120 and/or the first end 112 of the passage 110. The pin 135 may move within and/or may be located within the interior 118 of the passage to correspond to and/or to be based on the configuration of the pill 151. As a result, the mechanism 130 may determine and/or may measure the configuration of the pills 151 for positioning the pin 135 within the interior 118 of the passage 110 to correspond to the configuration of the pills 11 within the interior 96 of the funnel 36.

[0075] The first platform 134 may be attached to and/or may be connected to the top side 18 of the base 12. The first platform 134 may be located between the first ring 24 and the compartment 22 on the top side 18 of the base 12. A first arm 154 may be attached to and/or may be connected to the first platform 134 for determining and/or for identifying the con-

figuration of the pill 151 which may be located inside the perimeter 152 within the interior 150 of the basket 132. The first arm 154 may extend from the first platform 134 into the interior 150 of and/or within the perimeter 152 of the basket 132 for determining and/or for identifying the configuration of the pill 151 which may be located within the interior 150 of the basket 132. The first arm 154 of the first platform 134 may move within the interior 150 of the basket 132 between the front end 140 of and the rear end 142 of the basket 132 based on the configuration of the pill 151 which may be located within the interior 150 of the basket 132. Moving the first arm 154 between the front end 140 and the rear end 142 of the basket, may move and may position the basket 132 and/or the pin 135 to correspond to the configuration of the pill 151. As a result, the first arm 154 may move and/or may position the pin 135 of the basket 132 within the interior 118 of the passage 110 to correspond to the configuration of the pill 151.

[0076] The second platform 138 may be attached to and/or may be connected to the top side 18 of the base 12 and/or the second end 124 of the gate 120. The second platform 138 may be located between the first platform 134 and the first ring 24 and/or between the gate 120 and the top side 18 of the base 12. In an embodiment, the second platform 138 may be attached to and/or may be connected to the second end 124 of the gate 120. The second platform 138 may have grooves 156a, 156b to connect and/or to attach the movable element 136 and the second platform 138 for moving the gate 120 in the first direction and/or in the second direction and/or for moving the pin 135 within the interior 118 of the passage 110. As a result, the pin 135 may be moved within the interior 118 of the passage 110 to correspond to the configuration of the pill 151 via grooves 156a, 156b of the second platform 138. Moreover, the first end 122 of the gate 120 may move inwardly or outwardly with respect to the first end 112 of the passage 110 via the grooves 156a, 156b of the second platform 138.

[0077] The movable element 136 may be connected to and/or may be attached to the second platform 138 via the grooves 156a, 156b of the second platform 138. As a result, the movable element 136 may move inwardly or outwardly with respect to the second platform 138 via the grooves 156a, 156b of the second platform 138. The movable element 136 may move within the grooves 156a, 156b of second platform 138 for positioning and/or for moving the first end 122 of the gate 120 inwardly or outwardly with respect to the first end 112 of the passage 110. Moreover, the pin 135 of the basket 132 may be moved within and/or may be positioned within the interior 118 of the passage 110 to correspond to the configuration of the pill 151.

[0078] The movable element 136 may have a second arm 158 which may be attached to and/or may be connected to the movable element 136. As a result, the second arm 158 of the movable element 136 may be connected to and/or may be attached to the second platform 138 and/or the gate 120. The second arm 158 may extend from the movable element 136 inside the perimeter 152 within the interior 150 of the basket 132 for determining and/or for identifying the configuration of the pill 151 which may be located within the interior 150 of the basket 132. The movable element 136 may connect and/or may attach the basket 132 to the second platform 138. As a result, the movable element 136 may be located between and/or may be positioned between the second platform 138 and the basket 132.

[0079] Rods 155a, 155b may be connected to and/or may be attached to the first arm 154 and/or the second arm 158

(collectively known hereinafter as “the arms 154, 158”), respectively, for moving the first arm 154 and/or the second arm 158 to determine and/or to identify the configuration of the pill 151 located within the interior 150 of the basket 132. The rods 155a, 155b may rotate in the first direction and/or in the second direction for moving the arms 154, 158, respectively, to move the arms 154, 158 within the interior 150 of the basket 132. As a result, the rods 155a, 155b may rotate in the first direction and/or in the second direction for moving the movable element 136 inwardly or outwardly with respect to the first platform 134.

[0080] The pin 135 may be moved and/or may be positioned within the interior 118 of the passage 110 by rotating and/or by turning the rods 155a, 155b in the first direction and/or in the second direction. Further, the first end 120 of the gate 120 may move inwardly or outwardly with respect to the first end 112 of the passage 110 by rotating and/or by turning the rods 155a, 155b in the first direction and/or in the second direction. Moreover, the movable element 136 may move inwardly or outwardly with respect to the first platform 134 by rotating and/or by turning the rods 155a, 155b in the first direction and/or in the second direction.

[0081] The mechanism 130 may have a first knob 160 and/or a second knob 162 for determining and/or for identifying the configuration of the pill 151 within the interior 150 of the basket 132. The first knob 160 may be connected to and/or may be attached to the first rod 155a for moving, for positioning and/or for adjusting the first arm 154 inside the perimeter 152 within the interior 150 of the basket 132. The second knob 162 may be connected to and/or may be attached to the second rod 155b for moving, for positioning and/or for adjusting the second arm 158 inside the perimeter 152 within the interior 150 of the basket 132.

[0082] The first knob 160 may be turned and/or may be rotated in the first direction and/or in the second direction for rotating the first rod 155a in the first direction and/or in the second direction, respectively. As a result, the first rod 155a may move first arm 154 between the front end 140 and the rear end 142 within the interior 150 of the basket 132. The first knob 160 may be rotated to move the first arm 154 to correspond to the configuration of the pill 151 within the interior 150 of the basket 132 via the first rod 155a. As a result, the first knob 160 and/or the first rod 155a may position the first arm 154 within the interior 150 of the basket 132 based on the configuration of the pill 151 within the interior 150 of the basket 132. The first arm 154 may be moved to contact and/or to abut the pill 151 within the interior 150 of the basket 132. As a result, the pill 151 may be located between the first arm 154 and the rear end 142 of the basket 132 inside the perimeter 152 within the interior 150 of the basket 132.

[0083] In an embodiment, the second knob 162 may be turned and/or may be rotated in the first direction and/or in the second direction for rotating the second rod 155b in the first direction and/or in the second direction, respectively. As a result, the second rod 155b may move the second arm 156 between the front end 140 and the rear end 142 within the interior 150 of the basket 132. The second knob 162 may be rotated to move the second arm 158 to correspond to the configuration of the pill 151 within the interior 150 of the basket 132 via the second rod 155b. As a result, the second knob 162 and/or the second rod 155b may position the second arm 158 within the interior 150 of the basket 132 based on the configuration of the pill 151 within the interior 150 of the basket 132. The second arm 158 may be moved to contact

and/or to abut the pill 151 within the interior 150 of the basket 132. As a result, the pill 151 may be located between the second arm 158 and the rear end 142 of the basket 132 inside the perimeter 152 within the interior 150 of the basket 132.

[0084] The first arm 154 and/or the second arm 158 may be adjacent to the rear end 142 of the basket 132 within the interior 152 of the basket 132. The first arm 154 may be adjacent to, may contact and/or may abut the perimeter 152 within the interior 150 of the basket 132 and/or the second arm 158 within the interior 150 of the basket 132. The first arm 154 may be located and/or may be positioned between the second arm 158 and the perimeter 152 within the interior 150 of the basket 132. The second arm 158 may be adjacent to, may contact and/or may abut the perimeter 152 within the interior 150 of the basket 132. The second arm 158 may be located between and/or may be positioned between the first arm 154 and the perimeter 152 within the interior 150 of the basket 132. The first arm 154 and/or the second arm 156 may move between the rear end 142 and the front end 140 inside the perimeter 152 within the interior 152 of the basket 132 based on the configuration of the pill 151 within the interior 150 of the basket 132.

[0085] The pill 151 may be positioned inside and/or may be located inside the perimeter 152 within the interior 150 of the basket 132 at the rear end 142 of the basket 132. The arms 154, 158 may move inside the perimeter 152 within the interior 150 of the basket 132 from the front end 140 to the rear end 142 to contact and/or to abut the pill 151. The arms 154, 158 may move inwardly with respect to the rear end 142 of the basket 132 based on the configuration of the pill 151 located within the interior 150 of the basket 132 at the rear end 142 of the basket 132. The arms 154, 158 may be positioned within the interior 150 of the basket 132 to correspond to the configuration of the pill 151. In an embodiment, the rods 155a, 155b may rotate in the first direction and/or in the second direction for moving the arms 154, 158 to correspond to the configuration of the pill 151. In an embodiment, the first knob 160 and/or the second knob 162 (collectively known hereinafter as “the knobs 160, 162”) may be rotated in the first direction and/or the second direction for moving the arms 154, 158 within the interior 150 of the basket 132 via the rods 155a, 155b to correspond to the configuration of the pill 151.

[0086] The arm 154, 158 may abut and/or may contact the pill 151 within the interior 150 of the basket 132 at the rear end 142 of the basket 132. The pill 151 may be positioned and/or may be located between the arms 154, 158 and the perimeter 152 within the interior 150 of the basket 132 at the rear end 142 of the basket 132. A position of the arms 154, 158 inside the perimeter 152 within the interior 150 of the basket 132 may correspond to and/or may be based on the configuration of the pill 151 within the interior 150 of the basket 132 at the rear end 142 of the basket 132. The position of the arms 154, 158 inside of the perimeter within the interior 150 of the basket 132 may be indicative of, may determine and/or may identify the configuration of the pill 151 within the interior 150 of the basket 132. The position of arms 154, 158 may determine and/or may identify the configuration of the pills 11 within the dispenser 10 based on the configuration of the pill 151 which corresponds to the configuration of the pills 11.

[0087] Moving the arms 154, 158 to the position within the interior 150 of the basket 134 corresponding to the configuration 151 may move and/or may adjust the movable element 136 inwardly or outwardly with respect to the first platform 134 and/or to the second platform 138 (collection known

hereinafter as “the platforms 134, 138”). As a result, the movable element 136 may be positioned with respect to the first platform 134 and/or the second platform 138 based on the configuration of the pill 151 within the interior 150 of the basket 132. Rotating the rods 155a, 155b and/or the knobs 160, 162 in the first direction and/or in the second direction may move and/or may adjust the movable element 136 inwardly or outwardly with respect to the platforms 134, 138 based on the configuration of the pill 151 within the interior 150 of the basket 132. The pin 135 may move to and/or may be adjusted to a position at the first end 112 of the passage 110 by the movable element 136, the arms 154, 158, the rods 155a, 155b and/or the knobs 160, 162. The position of the pin 135 may be located within the interior 118 of the passage 110 at the first end 112 of the passage 110. The position of the pin 135 within the interior 118 of the passage 110 may correspond to and/or may be based on the configuration of the pill 151 and/or the configuration of the pills 11.

[0088] The wall 116a at the first end 112 of the passage 110, the pin 135 and/or the first end 122 of the gate 120 may define a pocket 164 within the interior 150 of the passage 110. The first end 122 of the gate 120 may be positioned at and/or may be located at a position with respect to the first end 112 of the passage 110 based on the configuration of pill 151 within the interior 150 of the basket 132 via the movable element 136 and/or the second platform 138. The pocket 164 between the pin 135, the first end 122 of the gate 120 and/or the wall 116a of the passage 110 may sized and/or may be shaped to correspond to the configuration of the pill 151 identified and/or determined by the arms 154, 158. As a result, the pocket 164 may be sized to and/or may be shaped to receive the one of the pills 11 from the interior 46 of the first ring 24.

[0089] FIG. 17 illustrates a system 200 which may have the mechanism 30, a microprocessor 200, a switch 202 and/or a transducer 204. The microprocessor 200 may be attached to, may be connected to and/or may be secured to the top side 18 of the base 12 within the compartment 22 of the base 12. The microprocessor 200 may be located within and/or may be positioned within the interior 84 of the compartment 22. The lid 82 may enclose and/or may cover the microprocessor 200 when the lid 82 may be attached and/or may be secured to the top side 18 of the base 12. The mechanism 130 may move and/or may position the first end 122 of the gate 120 and/or the pin 135 to be based on the configuration of the pill 151 for defining the pocket 164 to correspond to the configuration of the pills 11 within the dispenser 10.

[0090] The switch 202 and/or the transducer 204 may be electrically connected to the microprocessor 200 for dispensing the pills 11 from the dispenser 10. The switch 202 may be connected to and/or may be attached to the gate 120 and/or the pin 135 for detecting one of the pills 11 within the pocket 164. The switch 202 may move between an open position and a closed position for detecting one of the pills 11 which may be located within the pocket 164. In the open position, the switch 202 may indicate that one of the pills 11 may not be located within the pocket 164. In the closed position, the switch 202 may indicate that one of the pills 11 may be located within the pocket 164.

[0091] One of the pills 11 within the pocket 164 may abut and/or may contact the first end 122 of the gate 120 and/or the pin 135 at the first end 112 of the passage 110. As a result, one of the pills 11 within the pocket 164 may move the first end 122 of the gate 120 and/or the pin 135 to abut and/or to contact the switch 202 for moving the switch from the open position

to the closed position. As a result, the switch 202 may be moved to the closed position by one of the pills 11 within the pocket 164 via the first end 122 of the gate 120 and/or the pin 135.

[0092] The microprocessor 200 may be programmed to identify and to determine that the switch 202 may be in the closed position or in the open position. As a result, the microprocessor 200 may determine and/or may identify that the switch may be moved to the closed position by the pills 11 located within the pocket 164. The microprocessor 200 may calculate, may count and/or may tabulate a number of times that the switch 202 moves between the open position and the closed position to determine a number of the pills 11 transferred into and/or received by the pocket 164.

[0093] In an embodiment, an optical sensor 206 may be electrically connected to the microprocessor 200 to determine and/or to identify that one of the pills 11 may be located within the pocket 164. The optical sensor 206 may be connected to and/or may be attached to the walls 116a, 116b of the passage 110 and/or the top side 18 of the base 12. The optical sensor 206 may be located within and/or may be positioned within the pocket 164 to detect that one of the pills 11 may be located within the pocket 164. The optical sensor 206 may detect one of the pills 11 within the pocket 164 and/or may transmit an electrical signal to the microprocessor 200 to indicate that one of the pills 11 may be located within the pocket 164. The microprocessor 200 may be programmed to process and/or to receive the electrical signal from the optical sensor 206 to determine and/or to identify that one of the pills 11 may be located within the pocket 164. The microprocessor 200 may calculate, may count and/or may tabulate a number of the electrical signals received from the optical sensor 206 to determine a number of the pills 11 transferred into and/or received by the pocket 164.

[0094] In an embodiment, a laser scanner 208 may be attached to and/or may be connected to the mechanism 130 for determining and/or for identifying the configuration of the pill 151 which may be adjacent to the basket 132. In an embodiment, the laser scanner 208 may be positioned and/or may be located within the interior 150 of the basket 132 for determining the configuration of the pill 151 within the interior 150 of the basket 132. The laser scanner 208 may scan the pill 151 via a laser technology, such as, for example, confocal laser scanning, three dimensional laser and/or the like. As a result, the laser scanner 208 may determine and/or may identify the configuration of the pill 151 to move and/or to adjust the position of the pin 135 and/or of the first end 122 of the gate 120 to correspond to the configuration of the pill 151. It should be understood that the laser technology of the laser scanner 208 may be any laser technology as known to one having ordinary skill in the art.

[0095] The laser scanner 208 may be attached to and/or may be electrically connected to the microprocessor 200 as shown in FIG. 17. After scanning the pill 151, the laser scanner 208 may transfer and/or may transmit an electrical signal to the microprocessor 200. The microprocessor 200 may be programmed to receive and/or to process the electrical signal transmitted from the laser scanner 208 to determine and/or to identify the configuration of the pill 151. As a result, the microprocessor 200 may determine the configuration of the pills 11 within the interior 46 of the first ring 24 via the electrical signal from the laser scanner 208.

[0096] The microprocessor 200 may transmit an output signal to the transducer 204 for moving and/or for adjusting

the gate 120 and/or the pin 135 to correspond to the configuration of the pill 151 which may be determined by the electrical signal received from the laser scanner 208. The transducer 204 may be attached to, may be affixed to and/or may be connected to the gate 120 and/or the pin 135 for moving and/or for adjusting the gate 120 and/or the pin 135 based on the configuration of the pill 151 and/or of the pills 11 via the output signal from the microprocessor 200. The transducer 204 may move, may adjust and/or may control the position of the first end 122 of the gate 120 inwardly and/or outwardly with respect to the first end 112 of the passage 110 to correspond to the configuration of the pill 151 and/or the pills 11. Additionally, the transducer 204 may move, may adjust and/or may control the position of the pin 135 inwardly and/or outwardly with respect to the interior 118 of the passage 110 to correspond to the configuration of the pill 151 and/or of the pills 11. The transducer 204 may move and/or may position the first end 122 of the gate 120 and/or the pin 135 based on the configuration of the pill 151 which may be identified by the laser scanner 208. As a result, the pocket 146 which may be defined by the wall 116a, the pin 135 and/or the first end 122 of the gate 120 may be sized to and/or may be shaped to correspond to the configuration of the pills 151 via the transducer 204.

[0097] The drive unit 26 may be activated to move the pills 11 on the top side 48 of the second ring 30 which may be received from the first disk 32 and/or from the second disk 34 in the first direction within the interior 46 of the first ring 24 as shown in FIGS. 4 and 7. The pills 11 on the top side 48 of the second ring 30 may move in the first direction to abut and/or to contact the first end 122 of the gate 120 via the rotational forces of and/or the inertia of the pills 11 in the first direction. As a result, one or more of the pills 11 on the top side 48 of the second ring may abut and/or may contact the first end 122 of the gate 120 to enter and/or to be transferred into the pocket 164 at the first end 112 of the passage 110. The first end 122 of the gate 120 may be positioned with respect to the first end 112 of the passage 110 based on the configuration of the pills 11 and/or of the pill 151.

[0098] A first pill 153 of the pills 11 may be pushed and/or may be directed into the pocket 164 by the first end 122 of the gate 120 as shown in FIGS. 14 and 15. As a result, the first pill 153 may move from and/or may be transferred from the interior 46 of the first ring 24 into the pocket 164 by the first end 122 of the gate 120 via the rotational forces of and/or the inertia of the first pill 153 and/or of the pills 11 in the first direction. The position of the pin 135 and/or of the first end 122 of the gate 120 may prevent, may block and/or may stop more than one of the pills 11 from entering and/or from being transferred into the pocket 164 from the interior 46 of the first ring 24. As a result, the first pill 153 may be located within and/or may be positioned within the pocket 164 between the pin 135, the first end 122 of the gate 120 and/or the wall 116a of the passage 110.

[0099] Since the pocket 164 may be sized and/or may be shaped to correspond to the configuration of the pills 11, the pocket 164 may be filled by the first pill 153 which may be received from the interior 46 of the first ring 24 via the gate 120. In an embodiment, the microprocessor 200 may determine that the first pill 153 may be located within the pocket 164 via the switch 202 and/or the optical sensor 206. In an embodiment, the first end 112 may be inclined with respect to the second end 114 of the passage 110 for moving and/or for transferring the first pill 153 from the pocket 146 into the

interior 118 of the passage 110. As a result, gravitational forces may pull and/or may move the first pill 153 from the pocket 164 inwardly with respect to the interior 118 of the passage 110 and/or the second end 114 of the passage 110. In an embodiment, the first end 122 of the gate 120 may move inwardly and/or outwardly with respect to the pocket 146 to move the first pill 153 from the pocket 164 into the interior 118 of the passage 110. As a result, the first end 122 of the gate 120 may push and/or may move the first pill 153 inwardly with respect to the interior 118 of the passage 110 and/or the second end 114 of the passage 110.

[0100] Moving the first pill 153 from the pocket 164 into the interior 118 of the passage 110 may empty and/or may open the pocket 164 to receive a second pill (not shown in the drawings) from the pills 11 which may be located on the top side 48 of the second ring 30. The second pill may be moved into and/or may be transferred into the pocket 146 from the top side 48 of the second ring 30 by the first end 122 of the gate 120 via the rotational forces and/or the inertia of the second pill and/or of the pills 11 within the interior 46 of the first ring 24. As a result, the pocket 164 may be filled by the second pill received from the interior 46 of the first ring 24 via the first end 122 of the gate 120. The second pill may move from and/or may be transferred from the pocket 146 into the interior 118 of the passage 110. It should be understood that any number of the pills 11 may be transferred into the pocket 164 and/or into the interior 118 of the passage from the top side 48 of the second ring 30 via the rotational forces of and/or the inertia of the pills 11 on the top side 48 of the second ring 30 in the first direction. Moreover, the total number of pills 11 and/or the portion of the total number of pills 11 within the funnel 36 and/or within the interior 46 of the first ring 24 may be moved into and/or may be transferred into the pocket 164 and/or into the interior 118 of the passage 110.

[0101] An opening of the container may be located and/or may be positioned adjacent to the second end 114 of the passage 110 receiving one or more of the pills 11 from the interior 118 of the passage 110. The first pill 153 and/or the second pill move from and/or may be transferred from the interior 118 of the passage 110 into an interior of the container via the opening of the container and/or the second end 114 of the passage 110. Any number of the pills 11 and/or the portion of pills 11 may be transferred into the interior of the container via the interior 118 of the passage 110. Additional containers (not shown in the figures) may be located and/or may be positioned adjacent to the interior 118 of the passage 110 for receiving the portion of pills 11 and/or any number of the pills 11 from the interior 118 of the passage 110. Moreover, the total number of pills 11 which may be placed within the funnel 36 may be transferred to and/or may be received by one or more containers via the dispenser 10.

[0102] The dispenser 10 may have the funnel 36 within the notch 36 for transferring the pills 11 from the funnel 36 to the first disk 32. The second disk 34 may be connected to the first disk 32 may have the ridge 76 on the top side 66 for transferring the pills 11 to a top side 66 of the second disk 34 via the notch 98 of the funnel 36. The first disk 32 and/or second disk 34 may be rotated in the first rotational direction for transferring the pills 11 to the second ring 30 via the opening 64 of the first disk 32. The second ring 30 may be rotated in the second rotational direction for transferring the pills 11 to the passage 110 via the gate 120 and/or the pocket 164 which may be adjacent to the second disk 34. The dispenser 10 may have the mechanism 130 for determining and/or for measuring a con-

figuration the pill 151. The pill 151 may be inserted between arms 154, 158 of the mechanism 130 and/or the walls 148 to determine the configuration of the pill 151. The pin 135 may be connected to the mechanism 130 and/or to the arms 154, 158 and/or may be positioned within the interior 118 of the passage 110 based on the configuration of the pill 151. The pin 135 and/or the gate 120 may prevent more than one of the pills 11 from entering the pocket 164.

[0103] It should be understood that various changes and modifications to the presently preferred embodiments described herein will be apparent to those skilled in the art. Such changes and modifications may be made without departing from the spirit and scope of the present invention and without diminishing its attendant advantages. It is, therefore, intended that such changes and modifications be covered by the appended claims.

We claim:

1. A dispenser for dispensing pills wherein each of the pills has a size, the dispenser comprising:

a funnel having walls and a height defined between a top end and a bottom end wherein walls of the funnel define an interior of the funnel wherein the wall of the funnel has a notch at the bottom end of the funnel wherein the interior of the funnel is sized to receive a plurality of the pills;

a first disk having a center and a circumference wherein the first disk has a top side and a bottom side located opposite to the top side of the first disk wherein the top side of the first disk has a ridge extending from the center of the first disk outwardly with respect to the circumference of the first disk wherein the funnel is connected to the first disk wherein the first disk and the notch in the wall of the funnel define an opening wherein the opening is sized to receive one of the pills; and

a ring having a top side and a bottom side located opposite to the top side of the ring wherein the top side of the ring is connected to the bottom side of the first disk wherein the first disk rotates in a first direction and further wherein the ring rotates in a second direction which is opposite to the first direction.

2. The dispenser of claim 1 further comprising:

a drive unit connected to the first disk and the ring wherein the drive unit rotates the disk and the ring.

3. The dispenser of claim 1 further comprising:

a passage having walls defining an interior wherein the interior of the passage is sized to receive one or more of the pills.

4. The dispenser of claim 1 further comprising:

a second disk connecting the first disk and the ring wherein the second disk rotates in the first direction.

5. The dispenser of claim 1 wherein the first disk has a rim wherein the rim has an opening sized to receive one of the pills.

6. The dispenser of claim 1 wherein the first disk has an apex which extends outwardly with respect to the top side of the first disk.

7. The dispenser of claim 1 further comprising:

a pocket positioned adjacent to the top side of the ring wherein the pocket has an interior which is sized to receive one of the pills.

8. A system for dispensing pills from a funnel wherein the funnel has walls and a height defined between a top end and a bottom end wherein the walls define an interior of the funnel wherein the interior of the funnel is sized to receive the pills, the system comprising:

a base having a top side and a bottom side located opposite to the top side of the base wherein the top side of the base has a ring with a lip extending outwardly with respect to the top side of the base wherein the top side of the base and the lip define an interior of the ring wherein the base has a passage with walls defining an interior wherein the interior of the passage is adjacent to the interior of the ring wherein the interior of the passage is sized to receive one or more of the pills;

a first disk having a center, a perimeter, a top side and a bottom side wherein the bottom side of the first disk is located opposite to the top side of the first disk wherein the first disk is connected to the base wherein the first disk is located within the interior of the ring wherein the first disk has a rim adjacent to the perimeter of the first disk wherein the rim extends outwardly with respect to the top side of the first disk wherein the top side of the disk and the rim of the disk define an interior of the first disk; and

a ridge connected to the first disk wherein the ridge extends outwardly with respect to the top side of the first disk wherein the ridge extends from the center of the first disk outwardly with respect to the perimeter of the first disk wherein the ridge rotates in a first direction.

9. The system of claim 8 further comprising:

a drive unit connected to the first disk wherein the drive unit rotates the first disk and the ridge.

10. The system of claim 8 wherein the base has a pocket which is located adjacent to the ring of the base wherein the pocket is sized to receive one of the pills and is located between the interior of the passage and the interior of the ring.

11. The system of claim 8 wherein the base has a pin wherein the pin is located within the interior of the passage.

12. The system of claim 8 wherein the base has a second disk wherein the second disk is located between the first disk and the top side of the base wherein the second disk rotates in a second direction and moves the pill into the interior of the passage.

13. The system of claim 8 wherein the rim of the first disk has an opening sized to receive one of the pills on the top side of the first disk.

14. A method for dispensing pills from a funnel wherein the funnel has walls defining an interior of the funnel wherein the interior of the funnel is sized to receive the pills wherein each of the pills has a size and a shape which define a first configuration of each of the pills, the method comprising the steps of:

providing a dispenser wherein the dispenser has a base with a top side and a bottom side opposite to the top side wherein the dispenser has a lip attached to the top side of the base wherein the lip and the top side of the base define an interior of the dispenser wherein the dispenser has a first ring which is connected to the top side of the base wherein the dispenser has a passage with walls defining an interior of the passage wherein the passage is adjacent to the top side of the base wherein the interior of the passage is sized to receive one or more of the pills;

connecting a basket having a pin to the dispenser wherein the basket has walls defining an interior of the basket wherein the pin extends into the interior of the passage wherein the pin is located in a first position within the interior of the passage wherein the pin in the first position and one of the walls of the passage define a first pocket having a first size wherein the pocket is located between the interior of the dispenser and the interior of the passage; and

moving the pin to a second position within the interior of the passage wherein the pin in the second position and the one of the walls of the passage define a second pocket having a second size wherein the second pocket is sized to receive one of the pills from the interior of the dispenser wherein the second size of the second pocket corresponds to the first configuration of each of the pills.

**15.** The method of claim **14** further comprising the step of: inserting one of the pills into the interior of the basket wherein the second position of the pin is determined by the one of the pills within the interior of the basket.

**16.** The method of claim **14** further comprising the step of: connecting an arm to the dispenser and the basket wherein the arm extends into the interior of the basket.

**17.** The method of claim **14** further comprising the step of: rotating the first ring in a direction wherein one of the pills moves from the first ring into the second pocket.

**18.** The method of claim **14** wherein the first ring has a ridge wherein the ridge rotates in a direction and moves one of the pills.

**19.** The method of claim **14** further comprising the step of: connecting a first disk to the first ring wherein the first disk has an opening sized to receive one of the pills wherein the first disk rotates in a direction to move one of the pills into the opening.

**20.** The method of claim **14** further comprising the step of: moving a portion of the pills from the interior of the funnel into the interior of the passage via the second pocket.

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