

[54] **STORAGE MEANS FOR PELLET DISPENSER**

[75] Inventors: **Joel A. Joslin**, Crestwood; **Alan B. Ranford**, Desperes; **Elmer A. Koenig**, Kirkwood, all of Mo.

[73] Assignee: **Sherwood Medical Industries, Inc.**, St. Louis, Mo.

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[51] Int. Cl. **B23q 7/00**

[58] Field of Search 221/10, 17, 174, 103; 222/56, 185, 129

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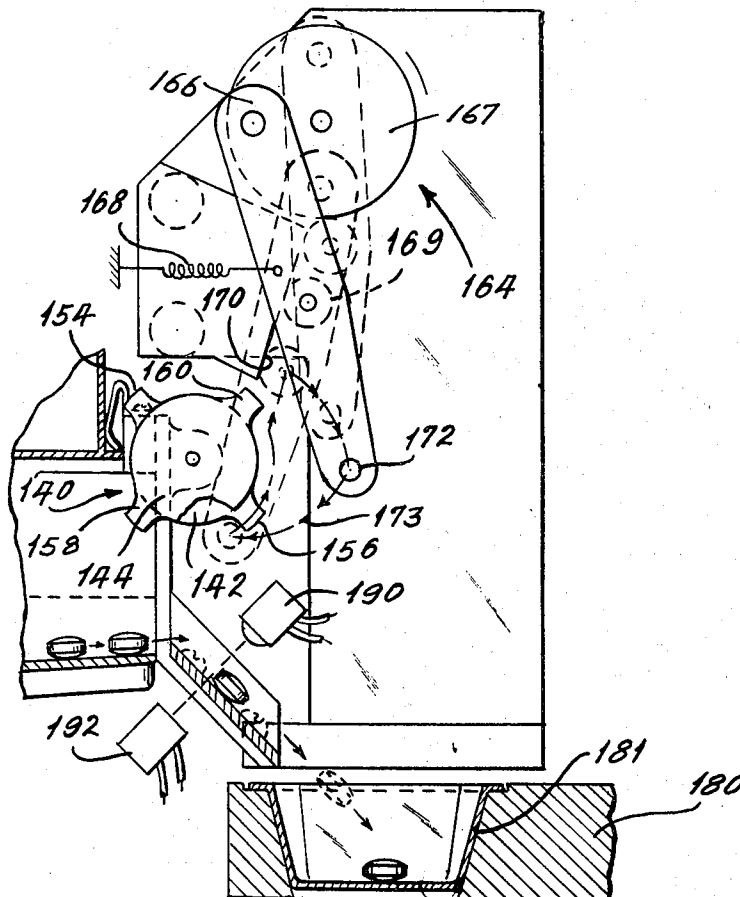
Primary Examiner—Allen N. Knowles

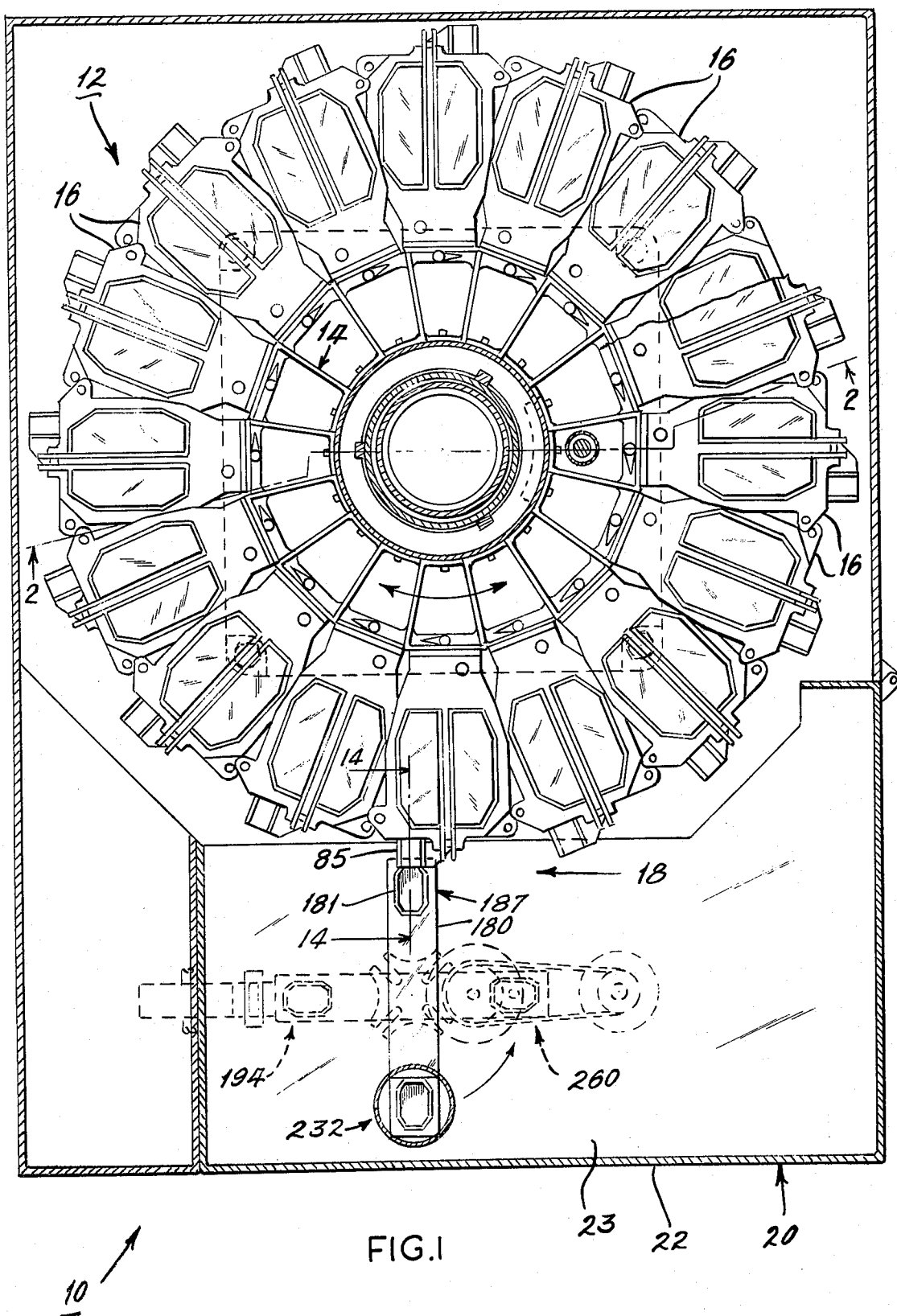
Attorney, Agent, or Firm—Stanley N. Garber; William R. O'Meara

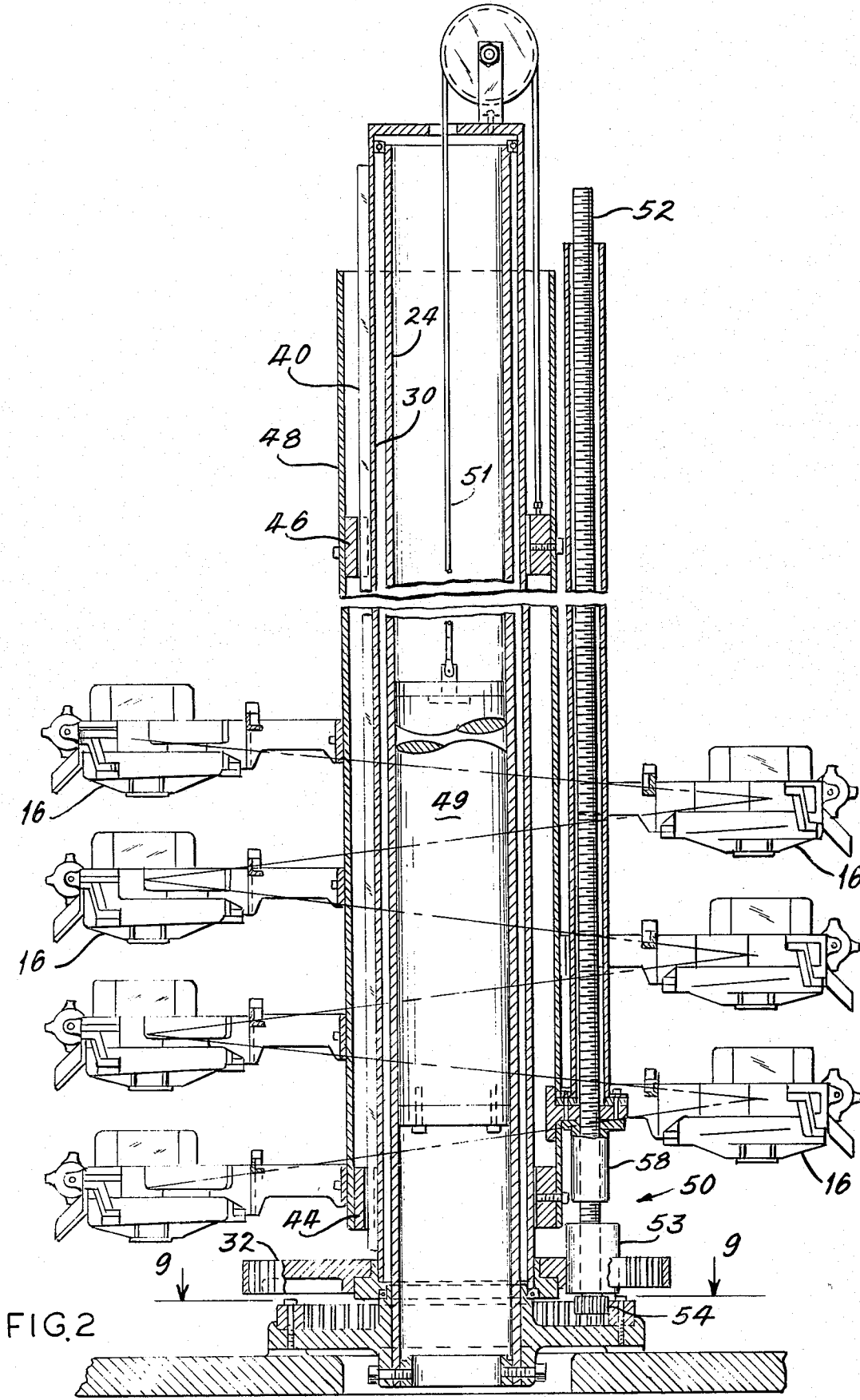
[57] **ABSTRACT**

A pelletized medicament dispensing system having a plurality of medicament pellet containing bowls mounted on a rotatable member in a helical array. A control system rotates the array to bring a selected bowl to a packaging station. At the packaging station, a varying magnetic field vibrates the selected bowl effecting movement of a selected number of pellets, one at a time, through a bowl outlet and into a packaging cup. Patient and medicament data is printed on a label that also serves as a package cover for the cup. The package of pellets is then dispensed from the system for use. An electronic control system for automatically dispensing the desired kind and number of pellets, and for printing the desired patient information on the label is also provided. The pelletcontaining bowls are elliptical and are provided with a pair of storage bins which are selectively opened to replenish the bowls.

11 Claims, 16 Drawing Figures







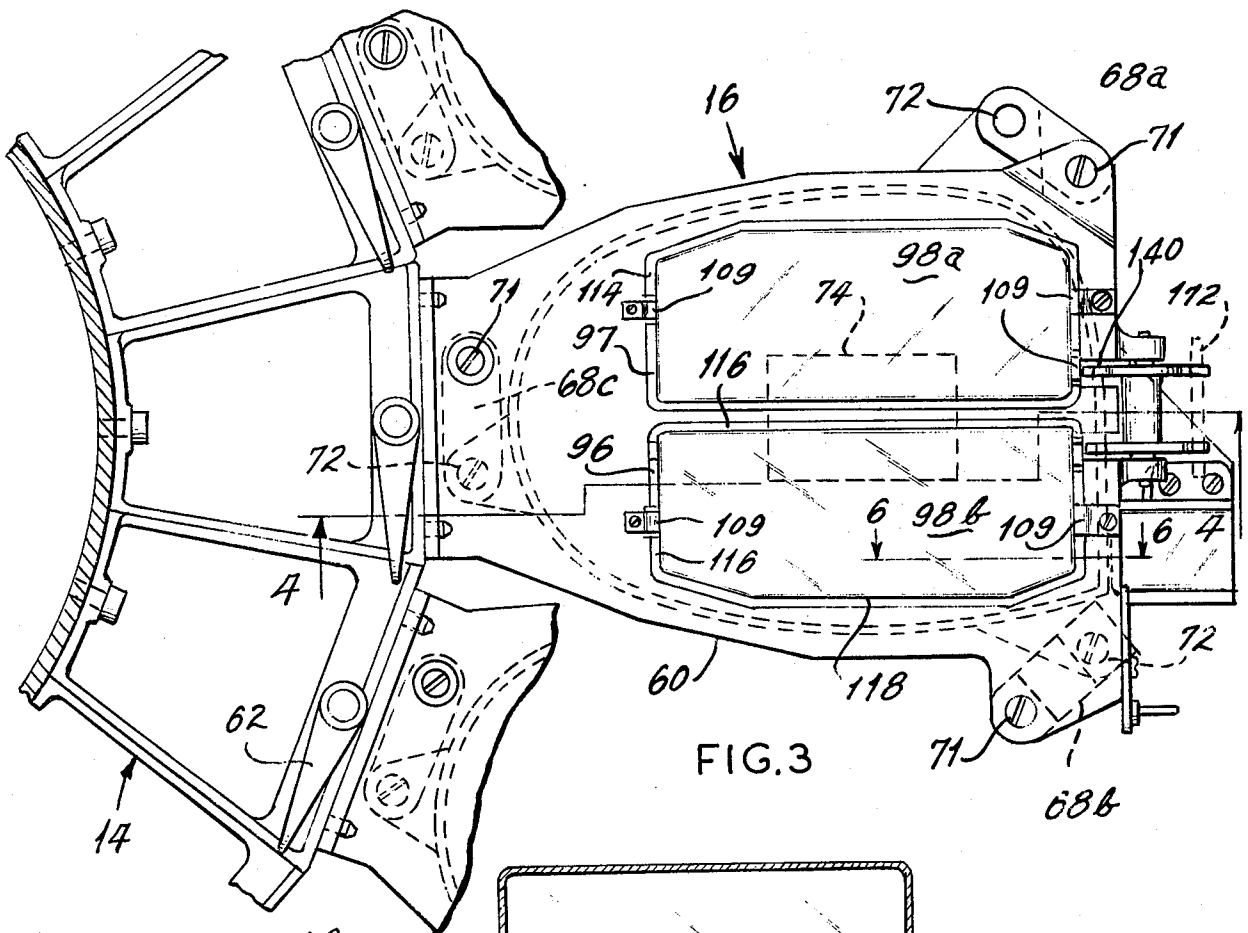


FIG. 3

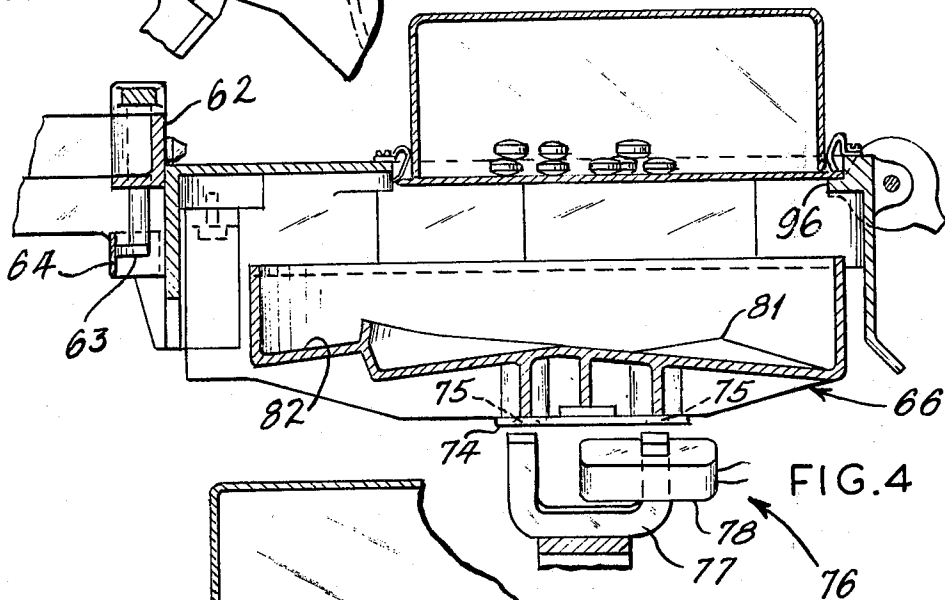


FIG. 4

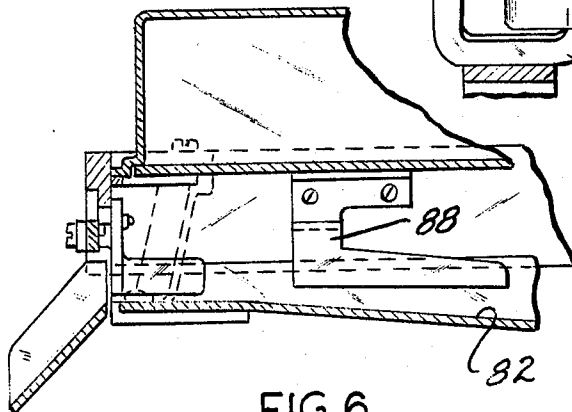
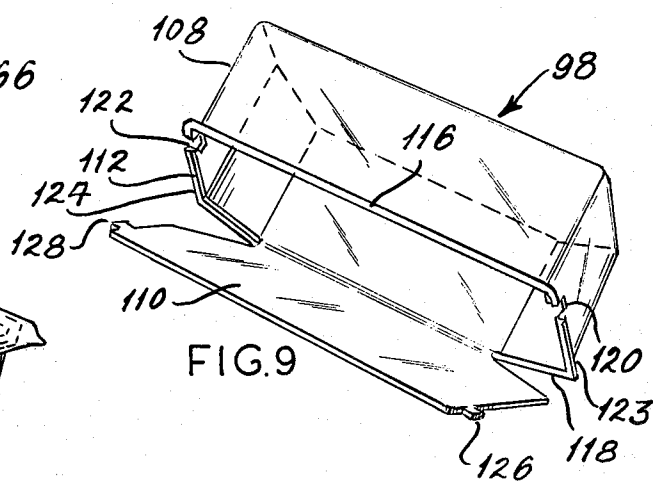
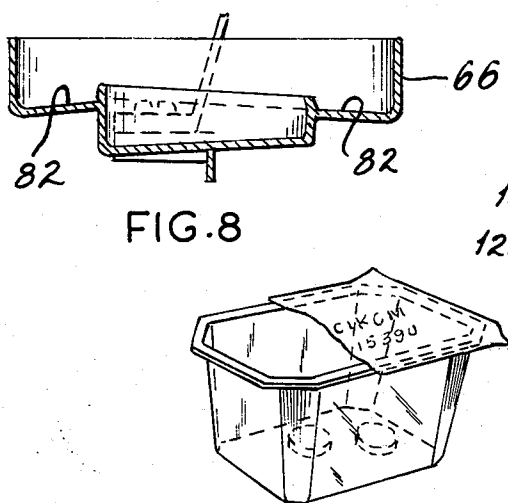
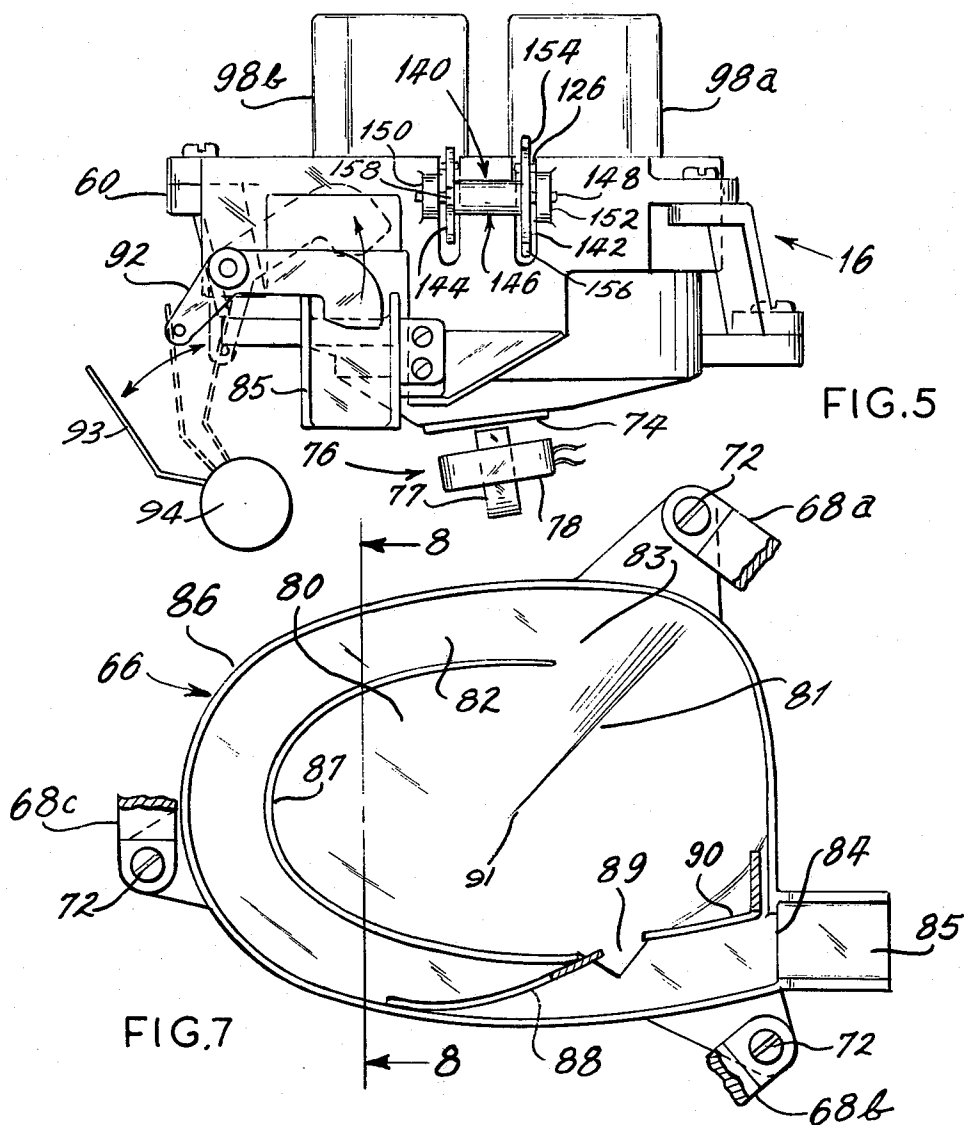
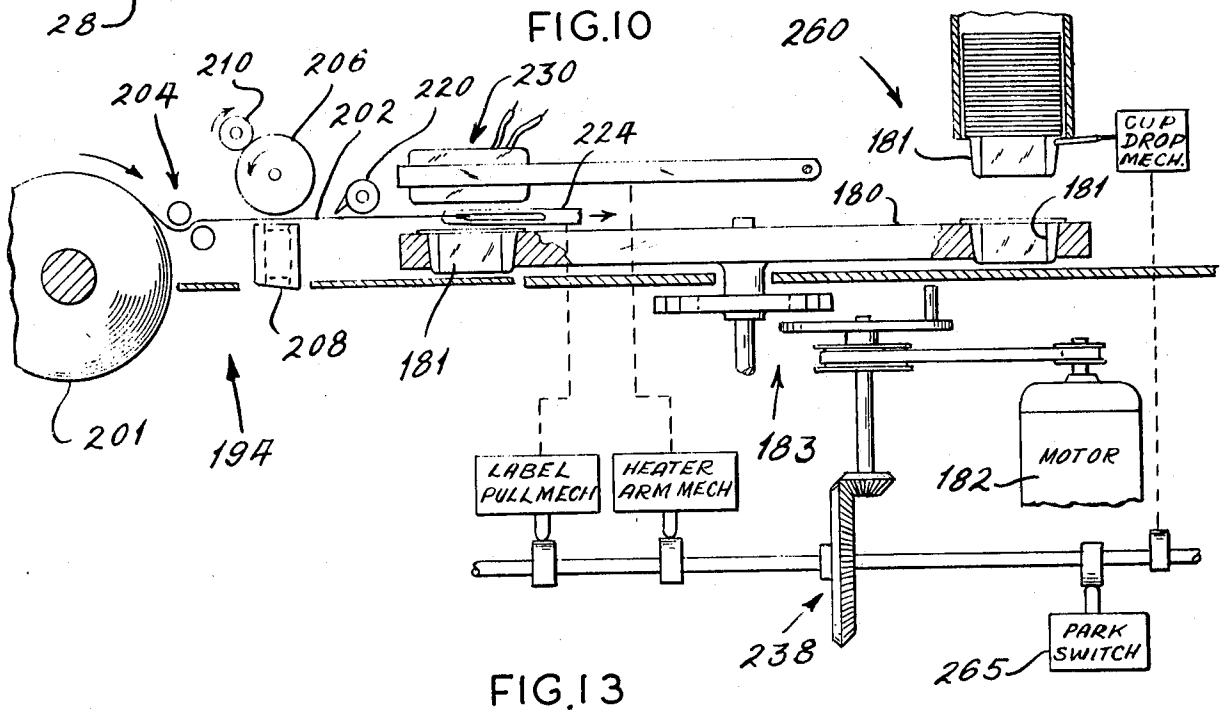
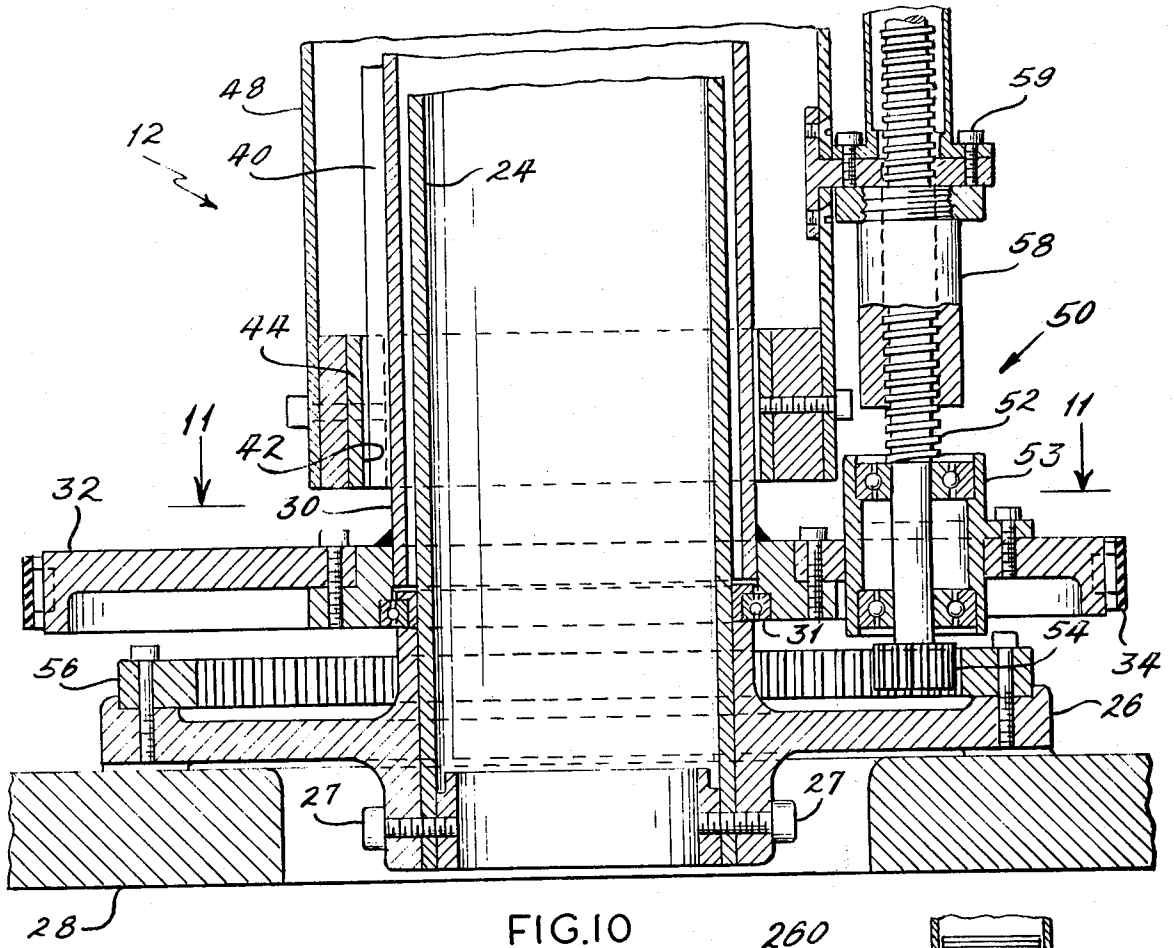
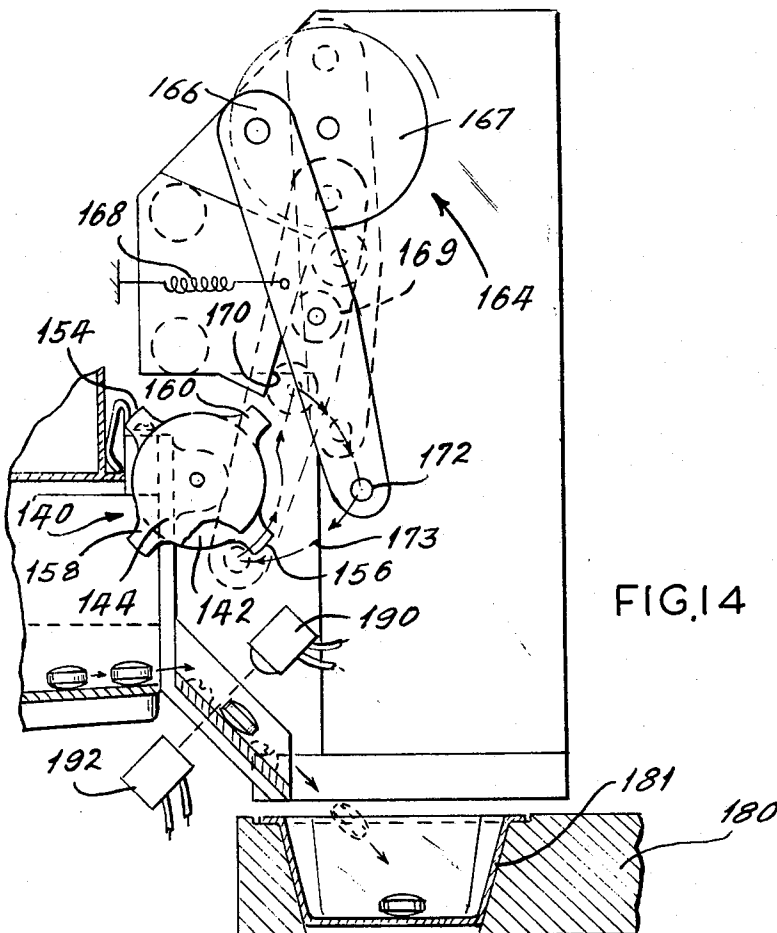
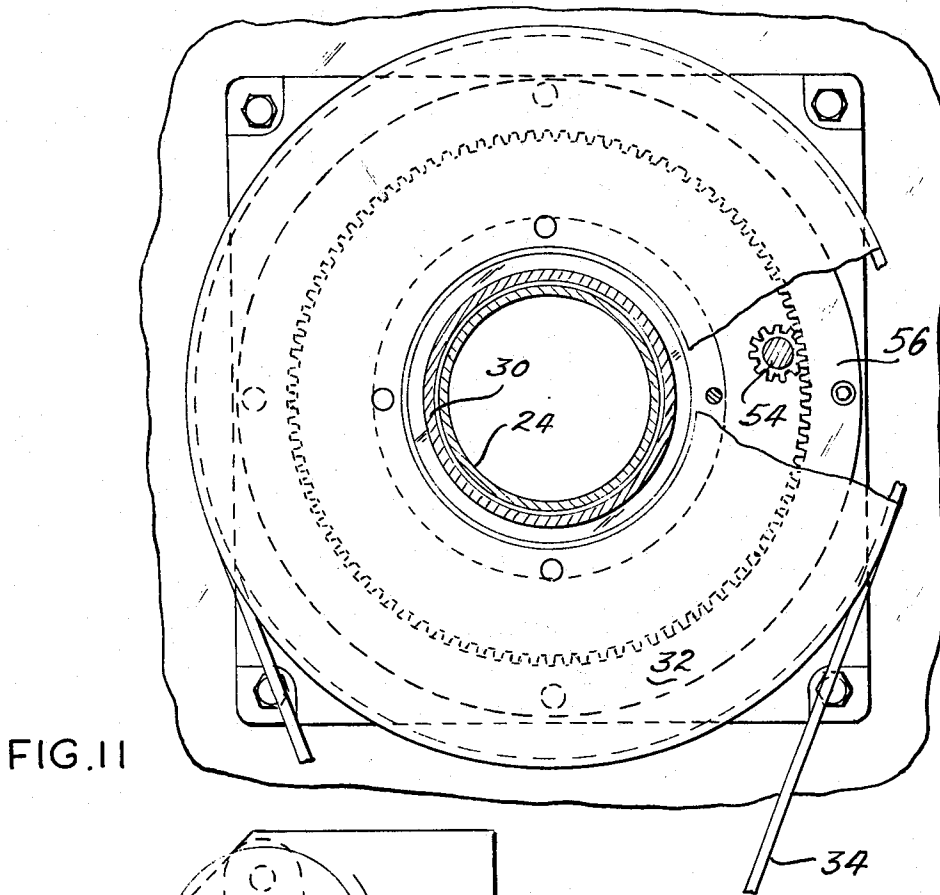


FIG. 6







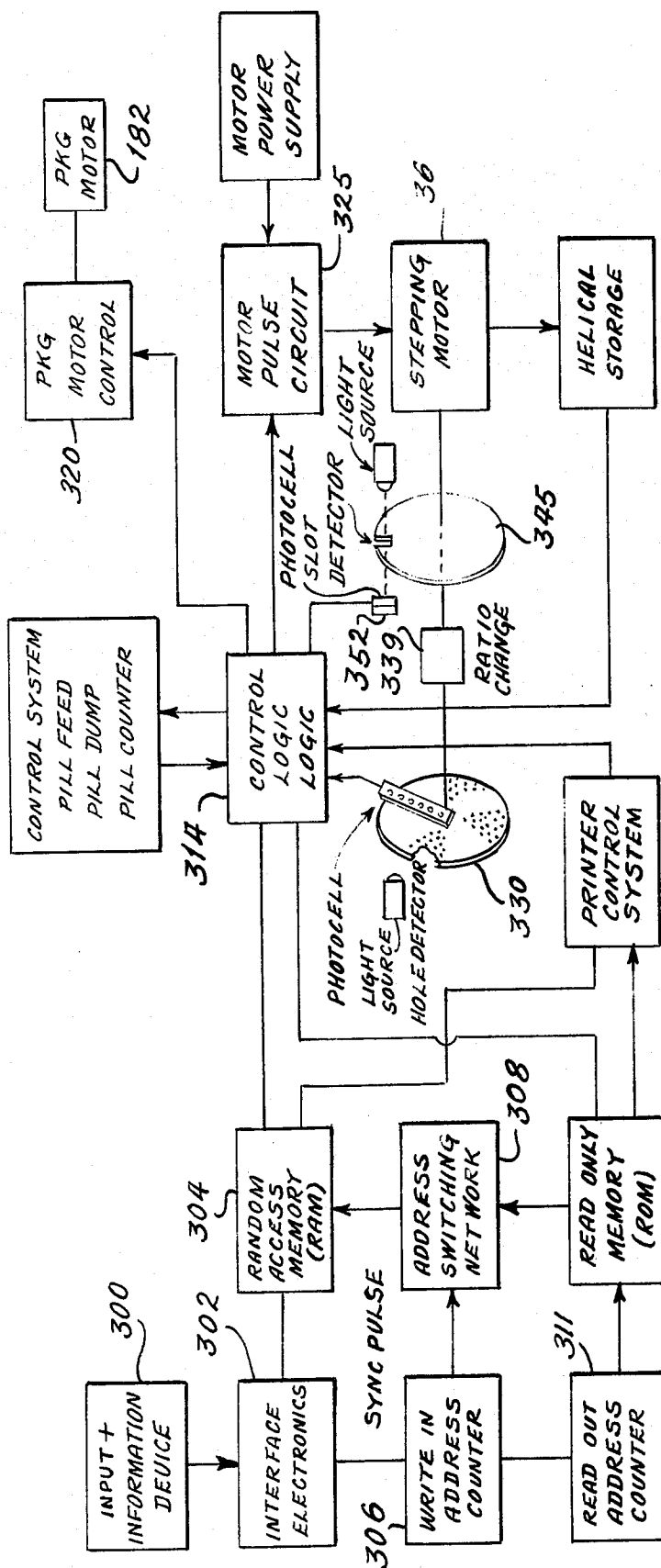


FIG.15

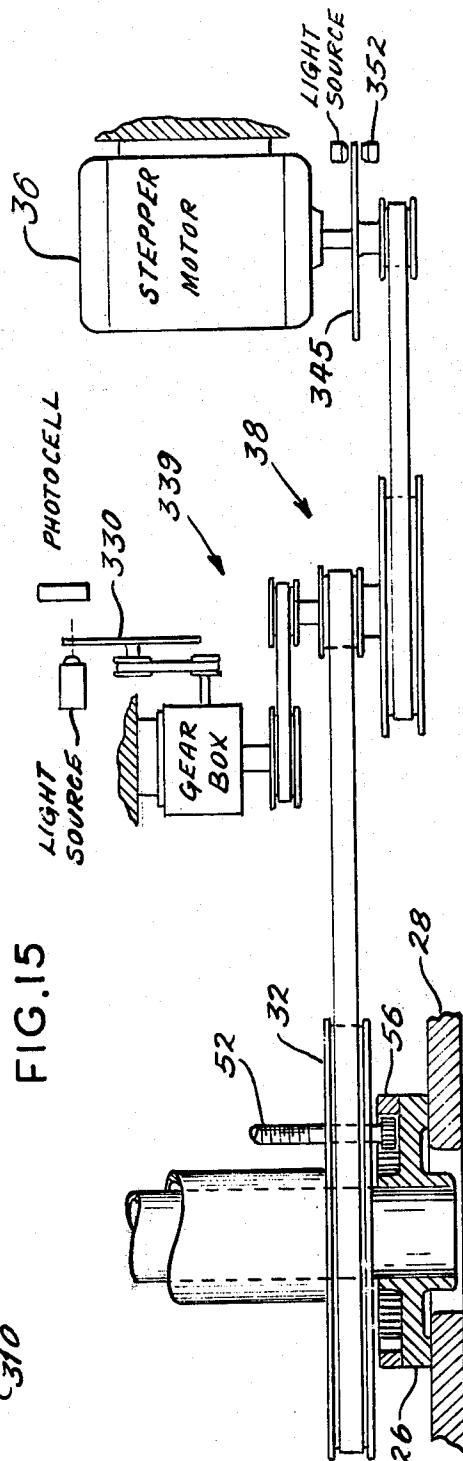


FIG.12

STORAGE MEANS FOR PELLET DISPENSER

BACKGROUND OF THE INVENTION

While vending machines are available that will dispense on command packages containing a predetermined amount of ingredients per package, these machines do not have the capability of varying the number of elements or amount of material in each package. Also, they do not have the capability of forming a package and providing a label thereon.

In the dispensing of pelletized medicaments, such as pills, tablets, capsules, suppositories, lozenges, and the like, in a hospital, the pharmacist fills a prescription by packaging a predetermined number of pellets in a container and places a typed label thereon indicating the patient, room number, type of drug, and dosage. Because of the large variety of medicament pellets and the variations in the number of pellets for each prescription, prepackaged medicament pellets have not been generally dispensed by a dispensing machine.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a pelletized medicament dispensing system capable of dispensing packages containing any of a variety of medicament pellets in any desired quantity. Another object is to provide medicament pellet containers for use in a medicament dispensing system of the above type wherein the container is capable of holding a relatively large number of pellets while requiring a relatively small space so as to reduce the overall size of the apparatus, and wherein pellets can be dispensed one at a time. Still another object is to provide storage means associated with medicament pellet containers of the above type wherein a relatively large number of pellets can be actuated selectively to reduce the number of times the dispensing machine must be entered for replenishing pellets.

In accordance with one form of the invention, a pellet dispensing system is provided which includes an array of medicament pellet containing bowls each capable of being vibrated by a magnetic field to discharge pellets therefrom and including a variable magnetic field device. The magnetic field device and array are relatively movable to bring a selected one of the bowls and the device into cooperative position so vibration caused by the magnetic field of the device effects movement of a selected number of pellets out of the bowl and into a packaging member.

These and other objects and advantages of the present invention will become apparent from the following detailed description and accompanying drawings. The novel features which are believed to be characteristic of this invention are set forth with particularity in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of a pelletized medicament dispensing system, with an upper portion removed for clarity, in accordance with a preferred embodiment of the present invention;

FIG. 2 is a sectional view taken along line 2—2 of FIG. 1 showing an elevational view partly in section of the turret mechanism of the dispensing system of FIG. 1;

FIG. 3 is an enlarged fragmentary plan view illustrating one of the pellet storage units of the system of FIG. 1;

FIG. 4 is a cross-sectional view taken along the line 4—4 of FIG. 3;

FIG. 5 is a right-hand end view of the pellet container of FIG. 3;

FIG. 6 is a cross-sectional view taken along the line 6—6 of FIG. 3;

FIG. 7 is a top plan view of the bowl of the container unit of FIG. 3 removed from other portions of the storage unit;

FIG. 8 is a cross-sectional view taken along the line 8—8 of FIG. 7;

FIG. 9 is a perspective view of one of the storage boxes of the pellet container unit of FIG. 3;

FIG. 10 is a fragmentary vertical cross-sectional view of the drive mechanism of the turret of the dispensing system of FIG. 1;

FIG. 11 is a cross-sectional view taken along the line 11—11 of FIG. 10 with portions broken away for clarity;

FIG. 12 is an elevational view illustrating a motor drive system for the turret of FIG. 1;

FIG. 13 illustrates an elevational view of the motor drive system of the packaging station of the dispensing system of FIG. 1;

FIG. 14 illustrates a sectional view taken along the line 14—14 of FIG. 1 illustrating the feeding of pellets and auxiliary storage operating mechanism;

FIG. 15 is a block diagram illustrating an automatic control system of the dispensing system of FIG. 1; and

FIG. 16 is a perspective view of a completed sealed prescription package of medicament pellets with a cover label thereon dispensed from the dispensing system of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings and particularly to FIGS. 1—3, a pelletized medicament dispensing system 10 is shown including a rotatable medicament storage turret 12 having a carriage 14 in the form of a helix carrying a plurality of coded pellet storage units 16 disposed in a helical array. The system 10 is automatically controlled to dispense packages of a selected kind and number of medicament pellets by an electronic control system 15 shown in FIG. 15 which will be described in detail hereinafter.

Rotation of the turret is controlled so as to bring a selected one of the storage units 16 to a pellet feeding and packaging station indicated generally at 18. Each storage unit may store a different kind of medicament pellet. At the packaging station 18, a preselected number of pellets of a preselected kind are packaged with a label and dispensed from the system.

The dispensing system 10 is shown enclosed in a cabinet 20 having a front lower door 22 with a horizontal upper cover 23 hinged to the cabinet to provide access to the turret drive mechanism illustrated in FIGS. 10 and 12, and the packaging station driving unit illustrated in FIG. 13.

The turret assembly 12, as also seen in FIGS. 10—12, includes a vertical stationary tubular member 24 fixed at its lower end to a supporting member 26 by bolts 27 with the supporting member provided with pads bearing on a base or floor 28 of the system. A rotatable tu-

bular drive member 30 concentric with tubular member 24 is fixed to a rotatable drive wheel or drive pulley 32 supported by bearings 31 on the supporting plate 26. A drive belt 34 on pulley 32 rotates the pulley and is driven by a stepping motor 36, as seen in FIG. 12, through a ratio changing pulley arrangement 38. A rotatable tubular member 30 is provided with three axially extending rectangular keys (one shown) 40 which are received in keyways 42 (FIG. 10) provided in lower and upper circular coupling members 44 and 46 that are connected to a vertically extending tubular support member 48. The web 14 carrying the pellet storage unit 16 is fixed, such as by bolts, to the exterior of support member 48. Thus, the tubular member 48 carrying the units 16 is rotatable with the tubular member 30 due to the connection between the coupling members 44 and 46 of member 48 and the keys 40 fixed to the member 30.

Turret 12 carrying the helical array of units 16 is movable up and down as it rotates by means of a rotary-to-vertical movement translating device, indicated generally at 50 and as best seen in FIG. 10. Device 50 includes a vertically extending threaded shaft 52 mounted for rotation in a bearing 53 in the drive wheel 32 and having a small gear 54 at the lower end engaged with internal threads of a ring gear 56 fixed to the supporting member 26. As the drive member 32 rotates, bearing 53 and shaft 52 rotate with it. The gear 54 causes rotation of shaft 52 as the gear 54 rotates about the stationary ring gear 56. The supporting tubular member 48 is moved up and down during rotation by means of an internally threaded coupling nut on bushing 58 threadedly received on the threaded shaft 52 and fixed by nuts 59 to the member 48. Thus, when the drive pulley 32 rotates, the gear 54 and shaft 52 rotate to cause the coupling nut 58 to move vertically up or down on the shaft 52 due to its threaded connection therewith, to thereby effect rotation as well as vertical movement of the member 48. In this way, the array of storage units 16 can be moved to position any one of them at the packaging station 18.

Turret 12 is provided with a counter-balance in the form of a weight 49 slidable in tubular member 24 and connected by a cable 51 over a wheel at the top to tubular member 48 carrying units 16. Weight 49 rises as the turret 12 lowers and lowers as the turret rises to obtain a substantially constant load on stepping motor 36.

Referring now especially to FIGS. 3-9, each of the storage units 16 includes an upper metal supporting frame 60 removably secured to the web 14 by means of a rotatable lever 62 (FIGS. 3 and 4) having a lower eccentric abutment member 63 engageable with a rear band 64 on the frame 60 to clamp the frame to the web. The pair of pins are shown in phantom in FIG. 3 entering holes in the rear of the frame 60 to insure that the unit 16 is rigidly connected to the web.

Frame 60 is elongated and extends radially outwardly from the web to support a pellet-carrying bowl 66 of generally elliptical configuration. Preferably, the bowl is formed of a suitable plastic, such as polypropylene. Bowl 66 is suspended in spaced relation from the frame 60 by three inclined spring members 68a, 68b and 68c, which may also be formed of a suitable plastic such as polypropylene. Each of springs 68a, 68b and 68c is connected at the top by a screw 71 to the frame 60 and at the bottom of the bowl 66 by any suitable means, such as a plastic rivet or weld 72. Each of the legs extends

downwardly from the frame 60 and is inclined in the same circumferential direction so that any vertical force applied to the bowl relative to the frame will cause a generally circumferential or circular movement of the bowl relative to the frame.

A plate 74 of magnetic material such as iron or steel is secured by a pair of screws 75 to the bottom of the bowl, it being centered over the center of gravity of the bowl. The plate 74 is adapted to be positioned in a variable magnetic field during the feeding or dispensing of pellets at the packaging station. A single magnetic field producing device is indicated generally at 76 in FIGS. 4 and 5, and is positioned in fixed relation at the packaging station where the pellets are to be fed into a cup. It includes an iron core 77 and a coil 78. Since the array of bowls moves in a helical path, the magnetic plate 74 of the bowl and the pole faces of magnetic member 76 are parallel to each other but inclined to the vertical so that the bowls pass the magnetic member 76 without interference, and such that when a bowl stops at the dispensing station above the magnetic member 76, the gap is of constant dimension. At the feeding station, a magnetic field is created by alternating current flow in coil 78 which acts on plate 74 to create forces causing rotary vibratory effects on the bowl 66 due to the springs 68a-68c. Thus, the bowl tends to rotate back and forth at a rate dependent on the frequency of current flowing in coil 78 which may be, for example, 60 cycle current. This vibration effect, of course, causes pellets in the bowl to vibrate and move in a direction toward the outlet of the bowl.

It has generally been considered a necessity that the bowl and other portions, such as the springs, be generally symmetrical or circular in order to obtain vibration feeding of particles out of a bowl. Use of generally circular bowls with spring members equally angularly related and having their neutral axes equally distant from the center of gravity were considered general requirements for proper operation. The use of oblong or generally elliptical bowls, such as bowl 66, instead of circular bowls in a system having an array, such as the helical array of bowls of turret 12, however, greatly reduces the overall size, as well as the size of parts and the inertia involved in moving a turret such as turret 12. Use of plastic bowls 66 further decreases the total weight of the turret.

As seen in FIG. 7, the bowl 66 has a bottom wall 80 with a high point or hump 81 adjacent the front portion of the bowl. A ramp, indicated at 82, has an entrance at 83 near the hump 81. Ramp 82 continuously rises and extends in a generally elliptical curve to an outlet indicated at 84 connected with a discharge chute 85 of transparent material such as plastic. The ramp is generally inclined or banked downwardly towards the outer wall 86 of the bowl for substantially the entire length of the ramp. The ramp 82 has an inner wall which is generally elliptical, as indicated at 87, and which extends above the floor of the ramp to prevent pellets from falling back into the central area 80 during feeding operations. The incline of ramp 82 is more clearly seen in FIGS. 4, 6 and 8.

It will be apparent from FIG. 7 that the three springs 68a-68c are not symmetrically angularly disposed about the bowl or its center of gravity, indicated by a point 91. Springs 68a and 68b are disposed near the outer end of the bowl while spring 68c is near the inner end. With this construction, the pills stored in the cen-

tral portion 80 will vibrate and move into the ramp entrance 83 and then move along the ramp 82 to the exit or outlet 84. The hump 81 aides in moving the pellets outwardly and tends to prevent them from circulating in the center portion 80.

In order to insure that only one pellet at a time moves out of the bowl for counting purposes, a scraper member 88 is shown connected by screws to the frame 60 (FIGS. 6 and 7) and extends angularly across the ramp 82 and touches the side wall of the bowl near the outlet of the ramp. Member 88 is flexible so that it does not interfere or prevent bowl vibration. It is preferably of thin plastic material. Scraper 88 is in the path of the moving pellets and allows only one pellet to pass under it by scraping off any pellets that happen to ride on the top of another pellet. Between the scraper 88 and the ramp outlet 84 is a pill return chute 89 which has the effect of narrowing the ramp adjacent the outlet so that should more than one pill pass scraper 88, all of them except one will fall into the chute 89 and back into the bowl. Also, a vertically extending wall 90 is provided at the outlet 84 to prevent pellets in the center portion 80 from being vibrated directly to the outlet 84. The wall 90 is spaced from the bowl 66 so as not to interfere with the bowl vibration.

A feed gate 92, as seen in FIG. 5, normally closes the outlet 84 of the bowl to prevent loss of pellets. When a bowl reaches the feeding station to dispense pellets, an actuating arm 93 connected to an actuating motor 94 controlled by the electronic system, for example, is operated to engage the feed gate 92 and move it upwardly out of the path of movement of the pellets at the outlet 84 to permit the pellets to feed out of the bowl.

As seen in FIGS. 3 and 4, the frame 60 has a pair of generally rectangular openings 96 and 97 which communicate with the interior of the storage bowl 66. Each of the openings 96 and 97 is adapted to receive an auxiliary storage bin or box 98, as seen in FIG. 9. In FIG. 3, the openings 96 and 97 are shown receiving auxiliary storage boxes 98a and 98b, respectively. Each of the storage boxes is adapted to carry an auxiliary supply of pellets to be selectively dispensed into the bowl when the bowl is empty. As seen in FIG. 9, the auxiliary storage box 98 has a generally rectangular storage portion 108 and a lid 110 pivotally connected to one side of the storage portion 108. The storage portion 108 has a peripheral flange 112 which extends outwardly from the box and is adapted to engage a peripheral flange 114 around each of the openings 96 and 97 of the frame. The boxes as seen in FIG. 3 are held in their openings by a resilient spring clip 109 at each end of the openings 96 and 97. The lid 110, when closed, frictionally engages the interior of the peripheral flange 112 of the storage portion of the box 98 to hold the pellets therein with the pellets resting on the interior surface of the lid, such as seen in FIG. 4. The auxiliary storage box 98 is shown as a single-piece member formed of a suitable plastic such as polypropylene with the lid 110 integrally hinged to the storage portion 108.

Each of the auxiliary boxes 98 has a substantially straight side indicated at 116 and a slightly curved or multi-sided opposed side 118 to which the lid is hinged. A pair of cut-outs or grooves 120 and 122 are provided in the opposed ends 123 and 124 of the storage portion 108 which extends through the flange 112 adjacent the straight side 116. The lid 110 is provided with a pair of opening tabs 126 and 128 which, when the lid 110 is

closed, enter the slots or grooves 120 and 122 in the periphery of the storage portion 108.

For proper operation of the vibrating bowl, the bowl should not be overfilled with pellets. Thus, by utilizing two auxiliary storage bins or boxes 98 which can be selectively opened after the bowls are empty, the device can operate to dispense a relatively large number of pellets without refilling the dispensing device. When a particular bowl 66 has been emptied, only one of the auxiliary boxes 98 is opened and the pellets therein drop into the bowl, thus replenishing the pellets for future feeding. After the replenished bowl is again empty, the second auxiliary storage box is emptied into the bowl. For this purpose, a lid actuating or operating member 140, as seen more clearly in FIGS. 3, 5 and 14, is mounted for controlled rotation on the front or radially outer wall of the frame 60. Operating member 140 includes a pair of actuating wheels 142 and 144 fixed together by a hub 146 which is mounted for rotation on a shaft 148 that is fixed to a pair of extensions 150 and 152 on the frame 60.

Actuating wheel 142 has a pair of radially outwardly extending lugs or projecting abutments 154 and 156 disposed 180° apart, and wheel 144 has a pair of similar lugs or abutments 158 and 160 disposed 180° from each other. The two wheels are related in fixed relation such that the four lugs are spaced 90° apart. The two wheels are located on the frame 60 such that during any given 90° rotation, one of the four lugs of actuating member 140 will engage one of the tabs 126 or 128 on one of the lids 110 of one of the auxiliary storage boxes 98 to thereby move the lid downwardly to dump the stored pellets into the main center portion 80 of the bowl 66. For example, when both of the auxiliary boxes 98a and 98b are closed and filled with pellets, and the wheels are in the position indicated in FIGS. 3, 5 and 14, the lug 154 and wheel 142 will move downwardly and engage lid tab 126 to snap open the auxiliary storage box 98a to dump all of the pellets from that box into the bowl 66.

Movement of wheel 142 is effected by a dump actuating mechanism indicated generally at 164 in FIG. 14. Mechanism 164 includes a link 166 pivotally connected eccentrically or off-center on a rotatable crank or disc 167. Link 166 is biased by a spring 168 toward the actuating member 140. It has a roller 169, shown in phantom, located near the center of the link which is engageable with a cam surface 170. At the lower opposite end of link 166 is an actuating pin 172, seen also in phantom in FIG. 3, which is long enough to engage both wheels 142 and 144. Pin 172, for one complete rotation of the disc 168, traverses a path indicated by the dash line with arrows at 173. It will be seen that the actuating pin 172 will hit one of the lugs on one of the wheels 142 or 144 on actuating member 140 to effect a 90° rotation of that wheel to thereby move the opposed lug of that wheel so that it engages one of the tabs 126 or 128 on the lid 110 of one of the storage boxes 98a and 98b to thereby dump the stored pellets into the bowl. During movement of the actuating pin 172 through the path 173, the roller 169 will, of course, leave the cam surface 170, but the cam surface will serve to guide the link 166 during return movement and to hold it in a parked position clear of the storage unit 16. In this manner, upon command from the control system 15, the mechanism 164 will cause only one storage package 98 to dump its contents at a time. That

is, the two storage boxes cannot be operated simultaneously and overfill the bowl.

An elongated rotatable cup-carrying member 180, as seen in FIGS. 1, 13 and 14, is provided with openings at each end for holding cups 181 that are adapted to receive pellets from a selected storage unit 16. The member 180 is operated by a motor 182, as seen in FIG. 13, through a four-position geneva gear assembly 183. In the pellet feeding position 187 of the member 180, such as shown in FIG. 1, a cup 181 is disposed beneath the pellet chute 85 of the selected storage unit 16. After the feed gate 92 is opened, as seen in FIG. 5, and the magnetic field producing device 76 is energized, the bowl will vibrate and pellets will move out of the bowl 66 and into the cup as indicated in FIG. 14. A light source 190 and a photodetector 192 actuate electronics in the control system to count the number of pills being dispensed and to stop the energization of the magnetic device 12 and close the feed gate 92 after a desired number of pellets have been dispensed into the cup. After the selected number of pellets have been placed in cup 181, the cup-carrying member 180 is rotated 90° by the geneva gear to position it at a printing, labeling and covering station 194. As best seen in FIG. 13, the printing mechanism may be of conventional design which includes a supply roll 201 of strip material such as paper strip 202 which may have a heat sensitive layer of adhesive on one side. The paper is advanced by paper advance rollers 204 between a rotatable printer roller 206 and a hammer mechanism 208. An ink roller 210 is shown engaging the periphery of print roller 206 to apply ink to the characters on its periphery. The roller 206 may be provided with a plurality of axially spaced circumferential lines of type. The hammer mechanism 208 may include a plurality of electromagnetically operated hammers corresponding to the desired number of lines of type and which are actuated to hit the paper at the time a desired character is facing it. An encoder disc (not shown) for example, provides signals to the control system to control the hammers for obtaining a label printed in accordance with the selected or desired input information supplied to the control system. The printed strip 202 is cut by a cutter 220 into a labeled lid of suitable size sufficient to cover the cup located at the label station. The label may contain the patient's name, room number, dosage, and kind of medicament. After the strip 202 has been cut by cutter 220, a label pull element 224 is actuated to pull the label over the open top of cup 181 to close it. A heating element 230 is then actuated to move down onto the label and activate the adhesive on the label to seal it to the periphery of the cup. The member 180 is rotated another 90° to bring the cup to a dispensing station 232.

As seen in FIG. 13, an operating label pull mechanism 234 for operating element 230, and a cup-drop mechanism for dropping a cup into member 180 at a cup drop station 260 are shown controlled by cams driven by motor 182 through suitable gearing 238. Also, a park switch 265 is activated to signal the control system 15 to insure that a cup is in place before feeding operations take place.

At the dispensing station 232, the completed sealed cup or prescription package may be blown out by a blower (not shown) or by other suitable discharge means to a position for retrieval and use. FIG. 16 shows a completed prescription package with a labeled lid.

By using the cup-carrying member as described, the packaging station performs its operations in a relatively short period of time since the printing operation and label may be applied while a cup is being moved into an empty cup-receiving opening in one position of member 180; also, a given cup may be filled while a completed package of pellets is discharged from the device.

It will be apparent that control of the operation of the turret and other functions may be done manually, semi-automatically by suitable control means or fully automatically by control electronics such as shown in FIG. 15. For example, an information input device 300 may be a suitable source of binary coded information, for example, a card reader punched in the ASCII Code or other device such as a magnetic tape input or CRT terminal. The interface electronics 302 which is connected to receive the coded information, in the illustrated example, supplies input data in the proper form to a random access memory 304 and provides a sync pulse to a write-in address counter 306 to effect addressing of the random access memory through an address switching network 308 during the write-in cycle. In this case, a read only memory 310 is used to address the random access memory 304. A read-out address counter 311 is provided for the read only memory and is connected to the write-in address counter to transfer control between the write-in counter and read-out counter as the circuit transfers from the write-in cycle to the read-out cycle. The output of the random access memory supplies data control information to the control logic indicated at 314. The control logic 314 controls, for example, the magnetic field producing member 76 for feeding pills from the bowl 66 into a cup, the control dump mechanism 164 and the pill counter 192 as seen in FIG. 14, as well as supplying signals for controlling the packaging motor through a package control 320. Also, logic 314 is used to control signals through a motor pulse circuit 325 to control the motor 36 which operates the turret or helical storage array 12. For stopping the turret 12 to selectively position a desired storage unit 16 at the packaging station, an encoder disc 330 having a plurality of code holes in serial radial array which correspond respectively to each of the units 16, is used to stop the turret at the packaging station. For example, the control logic in response to a given input signal to the control system, keeps the turret 12 turning by means of motor 36 until a signal from a photocell hole detector senses that the requested coded storage unit 16 has reached or is about to reach the packaging station. The encoded disc 330 is coupled through a suitable mechanical ratio changer 339 to the motor. There is also provided another disc 345 coupled to the stepping motor that has a slot at the periphery thereof. A photosensitive detector 352 is provided to detect the passing of the slot and is connected to the logic to insure that the unit is always stopped at precisely the packaging station location or in an exact parking position for proper feeding of pellets. The discs 330 and 345 are shown also in FIG. 12 coupled to the motor 36.

It is to be understood that the foregoing description and accompanying drawings have been given only by way of illustration and example, and that alterations and changes of the present disclosure, which will be readily apparent to one skilled in the art, are contemplated as within the scope of the present invention.

What is claimed is:

1. A pellet storage and dispensing device comprising a storage unit including a bowl adapted to store pellets and having an outlet for discharging pellets from said bowl, a pair of auxiliary pellet storage bins each adapted to contain an auxiliary supply of pellets for replenishing pellets in said bowl, means mounting each of said bins adjacent said bowl, each of said bins having a hinged closure normally retaining its auxiliary supply of pellets within the bin, and closure operating means including a pair of rotatable wheels each having an abutment member thereon with the abutment members of the wheels in angular relation and respectively engageable with said closures to sequentially open said bins in response to rotation thereof in a given direction.

2. The device of claim 1 wherein each of said wheels includes another abutment member angularly related to the first named abutment member thereon, and each of said abutment members of one of said wheels being angularly related to each of the abutment members of the other wheel so that only one of said closures can be opened at a time.

3. The device of claim 2 further including a frame supporting said bowl and said bins above said bowl, a tab at one end of each of said closures, one said abutment member on one of said wheels being engageable with the tab of one of the said bins to open the closure of that bin and discharge the pellets therein into said bowl, one of said abutments on the other of said wheels being engageable with the tab of the other of said bins to open the closure of that bin and discharge the pellets therein into said bowl.

4. The device of claim 3 wherein each of said bins has a peripheral flange with a groove therein, the tab of each bin extending through the groove.

5. The device of claim 3 wherein the abutment members of each of said wheels are spaced 180° apart, and the wheels are related with each abutment member of one wheel being angularly spaced 90° from each of the abutment members on the other wheel.

6. The device of claim 1 wherein said bins are mounted with the closure of each bin being pivotal away from the other bin.

7. The device of claim 5 further including an actuator for engaging said abutment members at different times for rotating said wheels, and wherein engagement of one abutment member of one wheel effects engagement of the other abutment member of that wheel with the closure of one of said bins to open that bin.

8. A medicament pellet storage and dispensing de-

vice comprising a storage unit including a frame, a bowl connected to said frame and adapted to store pellets and have pellets dispensed therefrom, first and second like auxiliary storage bins each adapted to contain an auxiliary supply of pellets for replenishing pellets in said bowl, each of said storage bins having a closure lid having a rear side hinged to the side wall of the bin and a forward side pivotal about the hinged rear side to open the bin, said bins being mounted on said frame above said bowl with said lids at the bottom for respectively supporting the auxiliary supplies of pellets and with the forward sides of said bins adjacent each other so that the lid of each bin pivots downwardly and away from the other bin, and closure operating means including an actuating member mounted on said frame including first and second abutment members engageable respectively with said lids for opening said bins, said abutment members being in fixed spaced relation with each other such that a first predetermined actuating movement of said actuating member opens only the lid of said first storage bin to discharge the auxiliary supply of pellets therein into said bowl and a second predetermined actuating movement of said actuating member opens the lid of said second storage bin to discharge the auxiliary supply of pellets therein into said bowl, and operating means for driving said actuating member sequentially through said first and second predetermined actuating movements.

9. The device of claim 8 wherein each of said abutment members comprises a wheel having a pair of radially outwardly extending lugs disposed 180° apart, said wheels being in fixed relation with each lug on one wheel being disposed 90° from each lug on the other wheel.

10. The device of claim 9 further including an operating member including a crank rotatable about its axis, a link pivotally connected at one end to said crank off center from said axis, means biasing said link toward said storage bins, a horizontally extending drive member connected to said link adjacent the other end thereof and engageable with each of said lugs upon rotation of said crank.

11. The device of claim 10 further including a stationary cam member mounted adjacent said link, and a roller mounted to said link intermediate said ends and engageable with said cam member to hold said drive member in spaced relation from all of said lugs when said crank is in a predetermined position.

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