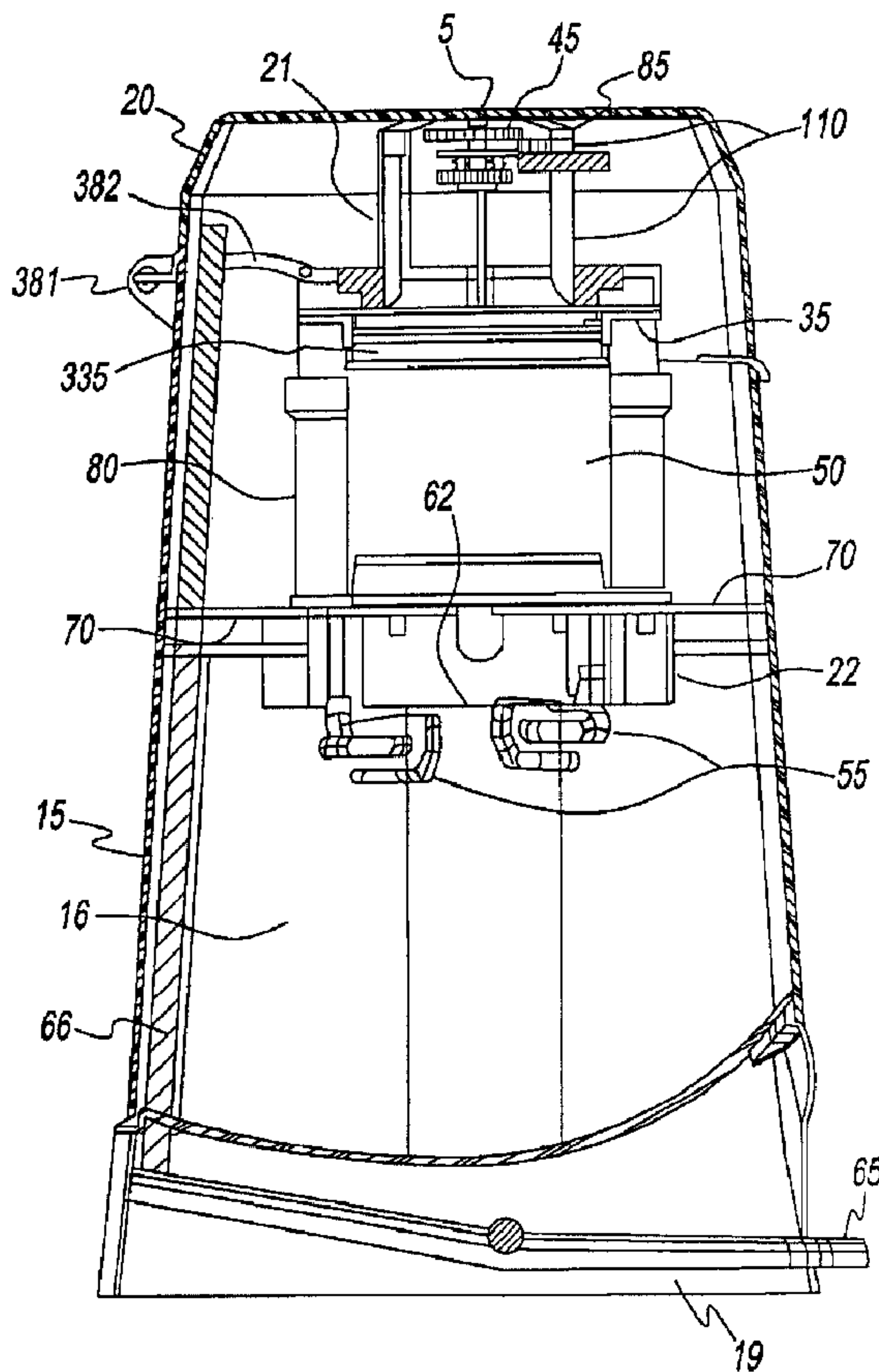




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(54) Titre : DISPOSITIF AUTOMATIQUE DE MISE AU REBUT DE COUCHES PAR TORSION
 (54) Title: AUTOMATED TWIST DIAPER DISPOSAL APPARATUS



(57) Abrégé/Abstract:

The present invention discloses an automated waste disposal apparatus including a container having a top end and a bottom end. A tubing refill cassette for supplying flexible tubing bag for sequestering waste packets is mounted proximate the top end of the



(57) **Abrégé(suite)/Abstract(continued):**

container. The top end of the container encloses an apparatus that combines automatic means for a twisting closure of the tubing open end emanating from the refill cassette, and automatic means for downward thrusting the twist- closed tubing creating new space for deposit of next waste packet. The automated mechanism comprises a timing or counting control for rotating the tubing refill cassette to effect the twist closure and next for activating the downward motion of the thrust plate.

ABSTRACT OF THE INVENTION

The present invention discloses an automated waste disposal apparatus including a container having a top end and a bottom end. A tubing refill cassette for supplying flexible tubing bag for sequestering waste packets is mounted proximate the top end of the container. The top end of the container encloses an apparatus that combines automatic means for a twisting closure of the tubing open end emanating from the refill cassette, and automatic means for downward thrusting the twist-closed tubing creating new space for deposit of next waste packet. The automated mechanism comprises a timing or counting control for rotating the tubing refill cassette to effect the twist closure and next for activating the downward motion of the thrust plate.

AUTOMATED TWIST DIAPER DISPOSAL APPARATUS

BACKGROUND OF THE INVENTION

5 The present invention relates generally to a waste disposal apparatus and, more particularly, to an automated apparatus particularly suited for the sanitary and odorless disposal of waste such as soiled diapers.

Description of the Related Art

10 There are a number of systems for disposing of waste materials such as soiled diapers. The systems are often touted as a convenient way to dispose of such waste materials and reduce or eliminate any odor that may emanate from the materials. An example of such systems is U.S. Patent No. 5,147,055 which discloses a diaper container that includes an activated charcoal filter to retain and absorb odors within the container.

15 Most waste receptacles are fitted with a lid designed to contain odors when the lid is closed. However, most lids are not designed to be perfectly air-tight in respect of their receptacles, or after repeated use become less-than air tight, permitting malodor to emanate from the receptacles even when they are closed. Even with the most air-tight containers, upon opening the container, the noxious odors escape into the area giving an extremely unpleasant sensation to the person attempting to add more trash to the receptacle. Location of the receptacles in a remote location is inconvenient and generally unsatisfactory.

25 Numerous receptacles have been proposed for temporarily holding diaper waste. These receptacles typically employ one of several approaches to reduce the emanation of malodor from the receptacle, which may be characterized as the use of making agents, odor sorbent material, inner lids or seals, air locks or sealed packaging.

Another problem with trash receptacles is that they tend to retain noxious odors even after the trash is ultimately removed. After a period of time a thorough and complete cleaning of such receptacles is necessary.

5 The scented diaper pail has been commercially available for many years. Scent is added to the diaper pail in the hope of hiding the smell of the malodor by producing a smell that masks the malodor to the olfactory senses. The problem with such pails is that the masking smell itself can often become irritating to the consumer, as well as the fact that most scented diaper pails lose their masking effect after a period of time.

10 A particularly difficult trash to retain for ultimate disposal is diapers. Diapers are typically stored and accumulated in a container. The cumulative odor of diapers being stored within the container frequently reaches such an offensive level that the diapers must be disposed of before the container is full. The latter leads to a large use of container liners such as bags, and excessive emptying operations. Excessive emptying operation can be of particular concern as one hesitates to leave the infant unattended or
15 to carry the infant and the soiled diapers to a remote location. A further problem associated with such containers is that the containers themselves over time tend to retain the malodor even when no diapers are present in the containers. Therefore a thorough and complete cleaning of such containers is often necessary to reduce the lingering odor. Further, as many diaper disposal receptacles are not child-proof,
20 toddlers playing around the container may inadvertently open the container to allow odors to escape or the child may reach in to touch solid diapers.

25 European patent application No. 0005660 describes a device for disposing kitchen refuse in packages enclosed by flexible tubing derived from a tubular pack of tubing surrounding a tubular guide. The device includes a tube sealing mechanism. The tubing passes from the pack over the top of and then down the guide to a position beneath the guide where it has been closed by fusion to provide a receptacle within the guide means. When this receptacle is full of refuse, a lever is manually operated to actuate an electro-mechanical apparatus including clamping and fusion devices that

travel round closed tracks to perform the four-fold task of drawing the receptacle down below the tubular guide, fusing the tubing walls together to seal the top of the receptacle, sealing the tubing walls together to provide the closed base of the next receptacle and dividing the tubing by heat at a location between these two fusion
5 locations to separate the filled package. There are a number of disadvantages with this device including the need for latches to prevent the wheels extending from the heating elements from inadvertently returning up the central track portions (as opposed to following the outer track portions as they should. A further disadvantage is that the heating element must be at least the width of the tube in order to seal the
10 tube all the way across thereby preventing, for example, the escape of odors from the waste.

Another popular approach to disposing of such diapers has been with a device using a tube twisting mechanism to form a pouch about the diaper. As an example, see the disclosures of U.S. Patent Nos. 4,869,049, 5,590,512, and 5,813,200.

15 The U.S. Patent No. 5,813,200 to Jacoby, et al. discloses a device for disposing of soiled diapers in twisted packages. The device has a container body with a hinged base, a hinged lid, and an upward cylinder secured within the container body. A tubular core rests on a portion of the upward cylinder to allow rotation there between. A flexible tube or sleeve rests on a portion of the tubular core with the
20 tubing being circumferentially pleated as stored. Springs are fixed to the container and project radially inward to engage a package formed from the tube. The springs are equally spaced around the interior of the container to hold the package during the forming of a twist in the tube.

25 The device disclosed in U.S. Patent No. 5,813,200 is used to form a series of packages enclosing objects. The top of the flexible tubing is pulled upwards and tied into a knot. The closed end formed by the knot can then form the bottom of a package with the sidewalls formed by the tubing. The object is inserted and rests against the tubing near the knot. A rotatable interior lid is put into place and rotated such that the unused tubing and the tubular core rotate with respect to the package that
30 is being formed. The package being formed does not rotate because it is held in place by friction between it and springs. Thus a package is formed between the knot and a

first twist. Subsequently, objects are disposed and twisted in a like manner to form discrete packages with twists between them.

Devices such as that disclosed in U.S. Patent No. 5,813,200 are a convenient way of disposing of soiled diapers. A disadvantage of the system is that the twists
5 between packages may become unraveled, thereby allowing groups of diapers to collect within the tubing, which makes emptying the container more difficult. Further, the twists do not create a continuous, complete seal and, therefore, may allow odor to escape from a package. Increasing the twists between packages may eliminate the above disadvantages, however, this requires the use of additional tubing.

10 Another example of a device used to decrease odors that emanate from diaper waste is disclosed in U.S. Patent Nos. 6,370,847 and 6,516,588, both issued to Jensen, et al. These related patents disclose a sealable diaper-disposal system that includes a container body, a tubular core on which flexible tubing is stored, and a tube-sealing mechanism having a pair of heating elements. The flexible tubing is pulled from the
15 tubular core and passed between the pair of heating elements. The tube-sealing mechanism operates to move the pair of heating elements toward each other to fuse the width of the tubing, and away from each other to allow the tubing to be pushed into the lower portion of the container body.

20 From the above it can be understood by those having ordinary skill in the art that there are a number of disadvantages associated with prior art waste disposal devices using flexible tubing to form packets for disposal of waste materials. It is clear that a device is needed that will eliminate the disadvantages described above. Such a device should be relatively economical to purchase and operate, ensure that the seals between packets are complete and cannot come undone, and be easy to operate.

25 SUMMARY OF THE INVENTION

One aspect of the present invention is a waste container for sanitary disposal of waste including a container body defining a waste bin and an opening that provides access to the waste bin; a support mounted to the container body adjacent the opening, the support having a flange extending therefrom that is configured for mounting a
30 tubing cassette above the waste bin, wherein the support encloses less than all of the

opening to the waste compartment so that waste can be passed through the opening and into the waste chamber; a tubing cassette mounted to the flange of the support; and a tube twisting/sealing means for forming individual waste packets from tubing that is dispensed from the tubing cassette.

5 According to the invention of the waste container with an automated twisting feature, a tubing cassette is rotationally mounted to the flange of the support; and a retention means for preventing rotation of a waste packet containing tubing portion when the tubing cassette is rotated to create a twist in the tubing. The flange may be configured to allow rotation of the tubing cassette. The cassette can be rotated by
10 electrical power by a motorized rotating grip ring to create a closure twisting action of the flexible tubing when sequestering a waste packet. The motorized apparatus for the sanitary disposal of waste according to this invention can also provide a plunging device with a suitable plate or disk for contacting the twist closure of the flexible tubing and downwardly pushing the flexible tubing for a predetermined distance from
15 the tubing refill cassette's storage compartment, providing sufficient space for depositing a waste packet.

 Another aspect of the present invention is an upper or head compartment located on top of the waste container encompassing an apparatus comprising a drive plate mounted to the tubing cassette, a drive gear assembly engaged with the drive
20 plate, and a motor mounted to the upper compartment apparatus and having an output shaft that rotates the drive gear when the motor is activated, the power from the motor being transmitted through the multiple gear assembly. A timing circuit may be employed for activating the motor to rotate the tubing cassette one of a predetermined amount of time or a predetermined number of times. A manually operated switch
25 may be used for activating the motor.

 According to the invention the upper or head portion serves also as lid over the lower receptacle compartment or waste bin of the waste container. The lid or upper compartment of the waste container of the invention can be hingedly attached to the container body for enclosing the opening to the waste bin. The lid or head portion of
30 the container can be secured with a latch device. In addition, the hinge itself can include a latching mechanism or a biasing means to retain the lid in an open position.

A foot pedal assembly is attached to the lid for opening the lid. Such assemblies are well known to those of ordinary skill in the art.

Another aspect of the present invention is a waste container including a container body defining a waste bin and an opening that provides access to the waste bin; a support mounted to the container body adjacent the opening, the support having a flange extending therefrom that is configured for rotational mounting of a tubing cassette above the waste bin, wherein the support encloses less than all of the opening to the waste bin so that waste packs can be passed through the opening and into the waste bin.

Another aspect of the invention provides a downward thrusting plate attached by a scissor slot assembly to a screw-type gear drive which is powered by an electrical motor through a gear transmission assembly; the activated thrust plate is extended downwardly to push onto the twist-locked flexible tubing sequestering a waste pack; the waste pack thereby being urged into the container waste bin compartment.

The apparatus is further equipped with a plunging plate to effect a downward thrusting motion at the twist-tightened upper end of the flexible tubing enclosing the waste pack pulling additional tubing from the refill cassette so as to provide a pouch-like space below the cassette core opening in order to receive the next waste pack, thereafter repeating the twist-tightening motion.

Furthermore, this invention provides an automatically controlled apparatus for individually sequestering packs of odorous waste in a length of flexible tubing which is dispensed and depending from a core tube portion inside a tubular refill cassette; the apparatus combining a lower compartment or bin for receiving and storing the tubing enclosed waste packs; and an upper compartment for accommodating and securing the electronically powered and controlled system for sequestering each pack of waste in the flexible tubing; the sequestering event being initiated by an electrical actuator causing to start first, a rotational movement of the tubing refill cassette or dispenser so as to effect a twist tightening of the flexible tubing which depends downward from the tubing refill cassette into the lower compartment of the waste

receptacle; the waste packet sequestering part of the tubing being held by a retention or clamping device; and secondly, activate the downward motion of a thrusting plate to urge the twist-locked waste packet into the waste receiving bin and simultaneously provide another length of flexible tubing for the next deposit of a waste packet. These
5 and other aspects of the invention are disclosed in more detail herein below.

The apparatus further provides a means for cutting the twist-tightened upper portion of the flexible tubing individually enclosing and sequestering a series of waste packs, which cutting means are suitable located at a position above the twisted portion of the tubing and below the refill cassette enabling removal of the tubing sequestered
10 waste pack from receptacle bins.

The rotational twist-tightening of the flexible tubing so as to lock can be reinforced by an adhesive containing device or ribbon segmentally positioned on the inside surface of the tubing material, said adhesive being activated by the twisting of the flexible tubing. Alternatively, the flexible tubing material can comprise clinging
15 properties for reinforced twist stabilization and sealing effect. The adhesive location can be placed on the inside of the flexible tubing at predetermined intervals or segments suitable for sequestering the waste packets.

A further aspect of the invention can be found in the film grip ring for gripping or holding the flexible tubing in place in order to prevent the inadvertent
20 release of the stored refill tubing from the rotating cassette during the twisting operation. This advantageous aspect assists in creating a measurably effective tight twist lock of the sequestered waste packet in the tubing segment.

Another feature of the inventive apparatus comprises a trigger mechanism for actuating the thrust mechanism determining the start of the downward motion of the
25 thrusting plate at the end or completion of rotational motion the core tube effecting the twist closure of the flexible tubing above the sequestered waste packet. The trigger mechanism can be initiated by a timing device or optical counter which actuates the thrust mechanism after a preset interval. The optical counter can be aided by a laser-optical detection device.

BRIEF DESCRIPTION OF THE FIGURES

A more complete appreciation of the invention and the advantages thereof will be more readily apparent by reference to the detailed description of the preferred embodiments when considered in connection with the accompanying figures, wherein:

Fig. 1 is an elevational side view of an embodiment of the present invention;

Fig. 2 is a sectional side view thereof;

Fig. 3 is an elevational view of a refill cassette embodiment of the invention;

Fig. 4 is a sectional side view thereof;

Fig. 5 is an elevational view of an embodiment of the refill twister apparatus;

Fig. 6 is a sectional view thereof; and

Fig. 7 is a sectional view of the extended plunger mechanism embodiment.

It is notable that like items depicted in different figures may be referred to by the same reference numbers.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention provides an automatic device for the convenient and hygienic sequestering of waste packets. Waste packets are understood to comprise diapers or similar waste contents.

For the purpose of this invention, any device that closes off tubing at a point along the length of the tubing is considered a "tube-sealing means." Therefore, for example, fusion devices, which close off tubing with heating elements, and twisting devices, which close off tubing by inducing a twist, are considered "tube-sealing means." Several tube-sealing means are disclosed herein above in the background of the invention. Other exemplary tube-sealing means are disclosed in U.S. Patent Nos. 6,128,890 and 6,065,272, and U.S. Publication No. US 2002/0162304. In this description and the accompanying figures of the automated sequestering and disposal

apparatus, reference is only made to a flexible tubing-twisting or twist-locking mechanism for closing off the flexible tubing to sequester the individual waste packets within the tubing as well as the associated downward placing of the sequestered waste packets by a plunger device.

5 The present invention as described in this embodiment is an improvement over other waste disposal devices or systems in that it comprises an automatically controlled mechanism for sequestering the waste packets individually inside a flexible tubing bay of some length dispensed from a refill cassette. The hands-off
10 embodiment features a motor-driven rotation of the refill cassette inner core tube portion thereby twisting the tubing the waste packet which is held in place by the spring-aided holder/brackets. Moreover, the embodiment comprises a driveshaft connected to the motor through a gear assembly or transmission. The driveshaft is activated when the tubing twisting rotation is completed and the waste packet is closed off or sequestered in the tubing material. The driveshaft is connected by a
15 pinion through the connecting scissor slots to the thrust plate of the plunger. The rotation of the driveshaft, i.e. a rod with a screw-type outer ridge, winds through the nut-like center hole of the pinion, which is thereby slideably moved along holding or locating means or rod causing the scissor connectors to extend and vertically move the thrust plate plunging or pressing down onto the twist-closure of the tubing portion
20 sequestering the waste packet, which is consequently placed down deeper in the waste bin of the container.

 The motorized two-step mechanism of the apparatus controlling the twisting and plunging of the automated waste sequestering operation can be manually turned on by pushing a button, preferably on top of the lid or head portion of the container.
25 Alternatively, the mechanism may be controlled by a foot operated switch or lever. The depressed button contacts electrically the actuator of the apparatus motor, causing an initial twisting rotation of the cassette core tube. The rotation of the motor driveshaft being transmitted through a set of gears to the rotatory ring that engages the cassette rim through the small ridges projecting therefrom on top of the cassette
30 when the hingedly attached upper head or lid compartment of the waste receptacle is closed..

The second step of the automated control of the waste sequestering mechanism causes a plunging device to downwardly thrust and extend onto the twist-locked waste packet enclosing tubing. Thus, the flexible tubing is pulled from the storage compartment of the cassette through a gap between the inner core tube and the rim atop the refill cassette.

Alternatively, the lid is opened by foot operated or activated mechanism which acts upon the lid at the latch mechanism which causes the lid to be in the open position. A waste load is deposited into the open center of the cassette. Upon release of foot-operated mechanism, the lid is caused to close so that the motorized actuator mechanism acts by a cog gearing system causing it to rotate a cassette holding a tubing bag receptacle. The rotation accomplishes two activities for sequestering a diaper or similar waste load and dropping or moving the same downwardly into the tubing bag.

At the closed lid position, the actuator initiates the rotation force on the tubing cassette by the refill twister exerting pressure on the beveled ring surface of the cassette. The rotational movement is measured to continue until sufficiently tight twisting has been effected on the tubing bag so as to close the top opening and thereby retain the waste load. At the moment when the twisting or tightening by cassette rotation is complete for sufficient closure of the tubing tubular bag, a vertically dispensed gearing mechanism is turned on and causes a downward movement of the cassette holder and cassette with attached waste loaded tubular receptacle portion. This downward thrust is mediated through a scissor link assembly which stretches out to extend along the axis of the cassette opening, moving the sequestered waste load downward.

Simultaneous to the motorized rotational force input on the cassette rim, a film grip ring is activated to contact and clamp down on to the flexible tubing emanating and hanging over the top edge of the inner core tube of the tubing cassette. This contact prevents release of tubing from the storage compartment of the cassette during the rotational twisting operation.

Throughout this specification, the word "comprise" or variations such as "comprises" or "comprising" will be understood to imply the inclusion of a stated integer or group of integers but not the exclusion of any other integer or group of integers. The general embodiment of the present invention is best understood by reference to Figs. 1- 7 of the drawings.

Referring to Fig. 1, a waste container 10 is shown comprising a lower or waste storing bin compartment 15 and an upper lid or head compartment 20 with an optional activation start button 5.

The automated twist waste disposal apparatus useful for sequestering waste packets such as diapers in twist-sealable flexible tubing as illustrated in one embodiment of the invention by taking reference to Figs. 1, 2, 3, and 4.

The disposal device 10 comprises top or lid portion 20 which comprises hingedly attached and latch-secured pivoting lid or cover configuration and a bottom or bin portion 15, comprising an approximately cylindrical or cone-like shape.

In Fig. 2, the lid portion 20 is shown to contain an apparatus for automatic control of twisting and lowering of tubing below the refill cassette, the apparatus comprising an upper body portion 21 and a lower body portion 22. More specifically, the lid 20 houses or contains the apparatus upper body 21, comprising an electronic motor-driven control gear assembly 110, an actuator 45, a rotatory grip ring or refill twister 35 for contacting and rotating the tubing refill cassette body 50 effectively twisting the flexible tubing 52 which emanates through a gap 54 between the rim 57 of the cassette 50 and the core tube 61, and is folded down through the open cassette tube core area 51 into the interior bin space 16 as partially shown in Figs. 3 and 4.

The lower body of apparatus 22 encompasses the removable refill cassette 50 as well as a retaining means or spring assembly 55 positioned to hold the flexible tubing 52 which encloses a waste pack (not shown) in the bin space 16 during the twist-closure operation. The tubing cassette 50 houses a length of tubing material 52 for sequestering the waste packets sequentially in the waste bin space 16.

A lid 20 secured by a hinge 381 to the waste bin 15 includes a latch 382. The waste bin 16 also includes a hinged base 19 for providing access to the lower interior of the second waste bin 16. The hinged base 19 includes a latch (not shown) for securing the hinged base 19 in a closed position.

5 The bottom rim 58 of the tubing refill cassette body 50 rests on a flange support or holding ring 70 which is affixed to the internal wall side of the bin 15 of the device 10. The flexible tubing material 52 is stored in a continuously folded manner in the tubing storage compartment 59 of the cassette 50.

10 Referring to FIG. 5, the apparatus embodiment of the gear assembly 110 in a housing or cap structure 155 of the upper body portion 21 of the electronic motor-driving apparatus 30 has a motor 47 located near the gear idler 25, which motor 47 is started when the manually depressed button 5 on the lid 15 makes contact with the switch 95. The first action of the motor-driven gear assembly causes rotation of the refill twister 35 comprising a tubular ring structure 36 which exhibits a notched bottom surface 130 that is
15 situated to make contact with the top ring or collar of the refill cassette 50 so as to propel the cassette into rotational motion. The tubular refill twisting device 36 is provided with a ridge 150.

20 Referring to FIGS. 6 and 7, an embodiment of the invention is represented showing the scissor link assembly 210 linked a slideable U-joint type linkage 215. The pinion is saddled on a radially positioned carrier device or rod 360 with a bracket 225 while at one point attached to a linkage 210 connecting slideable U-joint type linkage 215, and at another point attached to a drive rod 235. The drive rod 235 comprising a screw-like wound surface is inserted into the nut-type center of the which can be centrally
25 moved along the carrying means or rod 360 by the revolutions of the screw-type positioning rod so that the drive rod 235 rotations cause the scissor link connecting linkage 215 to move towards the center so as to move the plunger plate 40 vertically downward through open central portion 37 of the upper apparatus configuration 21 and the cassette core opening 62.

The twisting operation is further facilitated by the film grip ring 335 which, during the twisting operation, acts as a brake pressing onto the flexible tubing 52 atop the cassette core tube 61, and prevents the tubing 52 from being pulled out of the refill cassette 50 storage compartment 59 during the cassette rotation.

5 A revolution counting mechanism is included in the upper portion of the apparatus 21 controlling the twisting operation as well as the downward motion of the plunger 40.

10 Referring again to the illustrations of FIGS. 3 and 4, the refill cassette 50 stores the flexible tubing 52 which emanates from the storage compartment 59 through the gap 54 between the rim 57 and the cassette's core tube wall 61 and then fords into the inner core area 62, hanging into the bin space 16 below. The rim 57 is provided with small ridges 580 for effectively engaging the refill twister 34, in particular, the gear surface the refill twister 130 when rotating the cassette 50 and the top portion of the flexible tubing enclosing the diaper deposit (not shown).

15 Taking reference again to FIG. 2, the lid portion 20 of this embodiment 10 can be opened by depressing a foot pedal arrangement 65 which acts through a push rod 66 on the hinge assembly 381 of the lid 20, exposing the open core area 62 of the refill cassette 50 for depositing a waste packet.

20 As further illustrated in FIG. 2, the retention springs 55 are attached to the flange 70 and retain or hold a waste package (not shown) stationary while the rotating refill twister 35 causes the cassette collar or rim 57 to rotate the tubing cassette 50 inducing a twisting motion in the flexible tubing 52. As used herein, the term "retention means" shall include any retention device for retaining or restraining a waste package (not shown) in a stationary position while the cassette 50 and the flexible tubing 52 dependent through the cassette core tube area 62 is rotated.

25

As used herein, the term "retention means" shall include any retention device for retaining a tubing enclosed waste package stationary while the flexible tubing 52 is rotated.

Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made therein without departing from the scope of the invention as defined by the appended claims. For example, components in one figure can be combined with components shown in another figure.

5

While the invention has been described with respect to preferred embodiments, those skilled in the art will readily appreciate that various changes and/or modifications can be made to the invention without departing from the scope of the invention as defined by the appended claims.

WHAT IS CLAIMED IS:

1. A waste container, comprising:
 - a container body defining a waste bin, a lid and an opening that provides access to the waste bin;
 - a support mounted to the container body adjacent the opening, the support having a flange extending therefrom that is cylindrically configured for mounting a tubing cassette above the waste bin, wherein the support encloses less than all of the opening to the waste bin so that a waste packet is passed through the opening and into the waste bin;
 - a tubing refill cassette mounted to the flange of the support; and
 - a tube sealing means for forming waste packets by twisting a flexible tubing that is dispensed from the tubing refill cassette; and
 - the lid portion having attached thereto an apparatus for automatically controlling twisting the flexible tubing to form a tubing bag enclosing a waste packet and for automatically pushing the tubing bag enclosing the waste packet below the tubing refill cassette.
2. A waste container as recited in Claim 1, further including a waste bag mounted in the waste bin in which waste packets will sequentially collect.
3. A waste container as recited in Claim 1, wherein the flange is configured so the tubing cassette is rotated by motor to create a twist closure in the tubing when enclosing a waste packet.
4. A waste container as recited in Claim 3, wherein the tubing cassette is rotationally mounted to the flange, and further including a drive plate mounted to the tubing cassette, a drive gear drivingly engaged with the drive plate, and a motor mounted to the waste container lid and having an output shaft that rotates the drive gear when the motor is activated.
5. A waste container as recited in Claim 4, wherein a timing circuit activates the motor to rotate the tubing cassette one of a predetermined amount of time or a predetermined number of times.

6. A waste container as recited in Claim 4, further including a manually operated switch for activating the motor.
7. A waste container as recited in Claim 1, wherein the lid is hingedly attached to the container body.
8. The waste container of Claim 1, further comprising a plunging device for moving of the twist-closed waste packet downwardly into the bin so as to create tubing-lined space for a deposit of another waste pack.
9. The waste container of Claim 1, further comprising:
 - a retention means for preventing rotation of a waste packet when the tubing cassette is rotated to create a twist in the flexible tubing; and
 - a retention means for preventing the release of stored flexible tubing from the tubing cassette during the twisting rotation.
10. A waste container as recited in Claim 3, further including a drive plate mounted to the tubing cassette, a drive gear drivingly engaged with the drive plate, and a motor mounted to the composite waste container and having an output shaft that rotates the drive gear when the motor is activated.
11. A waste container as recited in Claim 10, wherein a timing circuit activates the motor to rotate the tubing cassette one of a predetermined amount of time or a predetermined number of times.
12. A waste container, comprising:
 - a container body defining a waste bin and an opening that provides access to the waste bin;
 - a support mounted to the container body adjacent the opening, and configured to enclose less than all of the opening to the waste chamber so that waste is passed through the opening and into the waste chamber;

a tubing cassette rotationally mounted to the support above the waste chamber;
a retention means for preventing rotation of a waste packet when the tubing cassette is rotated to create a twist in the tubing;
rotating means for automatically rotating the tubing cassette; and
plunging means for automatically pushing the twisted tubing downwardly to create new space for enclosing another waste packet.

13. The waste container of Claim 12, comprising further, a tubing gripping means to prevent release of tubing from the cassette during rotation for twist-closure of the waste content.

14. The waste container of Claim 12, further comprising an apparatus for automated sequestering of individual waste packets deposited and enclosed in the flexible tubing by means of motor-powered twisting of the flexible tubing and moving the waste packet enclosure into the waste container bin.

15. The waste container of Claim 1 or 12, wherein the flexible tubing is equipped with adhesive means for enhanced stabilization of the twisted tubing.

16. A waste disposal apparatus as recited in Claim 1 or 12, wherein the waste packet deposit is a soiled diaper.

17. A method for disposing of waste material, comprising:
providing a length of tubing having a first sealed portion of the tubing at a location along its length and an open end of the tubing;
inserting waste material through the open end of the tubing until it contacts the first sealed portion of the tubing to form a waste package;
retaining the waste package such that the waste package does not rotate in relation to the open end of the tubing;
rotating automatically the open end of the tubing such that a twist is formed in the tubing between the open end of the tubing and the waste package;

sealing at least a portion of the twisted tubing to form a second sealed portion located above the waste packet enclosure to form a sealed waste packet; and

plunging automatically downward the sealed waste packet to a waste area for storage.

18. A method for disposing of waste material as recited in Claim 17, further including the step of moving the length of tubing in a direction away from the open end of the tubing in preparation for the waste packet deposit step.

19. A method for disposing of waste material as recited in Claim 17, wherein the sealing step includes sealing at least a portion of the twisted tubing to form a second sealed portion by optionally electro-thermally heating or chemical adhesive application to at least a portion of the twisted tubing.

20. A method for disposing of waste material as recited in Claim 17, wherein the retaining step includes retaining the waste package by gripping the waste package enclosure, such that the waste packet does not rotate in relation to the open end of the tubing.

21. A method for disposing of waste material as recited in Claim 17, wherein the inserting step includes inserting or depositing a soiled diaper through the open end of the tubing until it contacts the first sealed portion of the tubing to form a waste package.

22. A container for automated diaper disposal, comprising:

a container bin compartment for diaper deposits;

a container top compartment having attached thereto an apparatus for automated sequestering of diapers in the container bin;

a combination of an automatically controlled motor-driven twisting operation which sequesters each deposited diaper individually in flexible tubing into a container bin compartment; and

an automatically controlled motor-driven plunging operation which pushes downwardly the twist-locked diaper into the container and creates a predetermined length of the flexible tubing so as to provide space for the next following diaper deposit within the flexible tubing.

23. A receptacle, comprising:

a container comprising a top portion, a bottom portion, a side portion encompassing a void, a lid attached to said top portion of the container;

a cassette comprising a rigid body formed by a tubular core defining a first space, said tubular core open at top and bottom, a surrounding casing wall positioned to provide a second space between said tubular core and said casing wall and a base wall joining a lower end of said surrounding casing wall to a lower end of said tubular core, a length of flexible tubing packed in said second space;

one or more support member projecting from said side portion of said container configured to retain said cassette between said top portion and said bottom portion of said container and permitting communication of said flexible tubing from said cassette to said bottom portion of said container, said cassette being rotatable, said support member comprising a flange structurally configured to allow said cassette to be rotated;

a tube sealing mechanism operably configured to engage with said cassette to form and seal a packet of material in said flexible tubing by rotating said cassette;

a drive plate mounted on said cassette;

a drive gear operably engaged with said drive plate;

a motor mounted to said container and having an output shaft that rotates said drive gear when said motor is activated; and

a timing circuit activating said motor to rotate said cassette at a predetermined amount of time or a predetermined number of times,

wherein said lid comprises an apparatus for actuating said tube sealing mechanism.

24. The receptacle of claim 23, wherein said receptacle comprises a waste disposal container.
25. The receptacle of claim 23, wherein said lid is hingedly attached to said container.
26. The receptacle of claim 23, further comprising a plunging device which is movable downwardly into said bottom portion of said container.
27. The receptacle of claim 23, further comprising: a first retention mechanism operably configured to prevent rotation of a packet when said cassette is rotated to create a seal in said flexible tubing; and a second retention mechanism operably configured to prevent release of said stored flexible tubing from said tubing cassette during rotation.
28. The receptacle of claim 23, wherein said flexible tubing is provided with an adhesive.
29. The receptacle of claim 23, wherein said waste material is a soiled diaper.
30. A receptacle, comprising:
- a container comprising a top portion, a bottom portion, a side portion encompassing a void, a lid attached to said top portion of the container;
 - a cassette comprising a rigid body formed by a tubular core defining a first space, said tubular core open at top and bottom, a surrounding casing wall positioned to provide a second space between said tubular core and said casing wall and a base wall joining a lower end of said surrounding casing wall to a lower end of said tubular core, a length of flexible tubing packed in said second space;
 - one or more support member projecting from said side portion of said container configured to retain said cassette between said top portion and said bottom portion of said container and permitting communication of said flexible tubing from said cassette to said bottom portion of said container, said support member comprising a flange structurally configured to allow said cassette to be rotated, said cassette being mounted onto said flange;

a tube sealing mechanism operably configured to engage with said cassette to form and seal a packet of material in said flexible tubing by rotating said cassette;

a drive plate mounted on said cassette;

a drive gear structurally engaged with said drive plate;

a motor mounted on said container lid and having an output shaft that rotates said drive gear when said motor is activated; and

a manually operated switch for activating said motor,

wherein said lid comprises an apparatus for actuating said tube sealing mechanism.

31. A receptacle, comprising:

a container comprising a top portion, a bottom portion, a side portion encompassing a void, a lid attached to said top portion of said container;

a cassette comprising a rigid body formed by a tubular core defining a first space, said core open at top and bottom, a surrounding casing wall positioned to provide a second space between said tubular core and said casing wall and a base wall joining a lower end of said surrounding casing wall to a lower end of said tubular core, a length of flexible tubing packed in said second space, said cassette being rotatable;

one or more support member projecting from said side portion of said container configured to retain said cassette between said top portion and said bottom portion of said container and permitting communication of said flexible tubing from said cassette to said bottom portion of said container, said support member comprising a flange structurally configured to allow said cassette to be rotated;

a tube sealing mechanism operably configured to engage with said cassette to form and seal a packet of material in said flexible tubing by rotating said cassette;

a plunging mechanism operably configured to move a sealed waste packet downwardly while pulling a length of said flexible tubing from said cassette to create new space for enclosing a subsequent waste packet,

a drive plate mounted on said cassette;

a drive gear operably engaged with said drive plate;

a motor mounted to said container and having an output shaft that rotates said drive gear when said motor is activated; and

a timing circuit activates said motor to rotate said cassette at a predetermined amount of time or a predetermined number of times,

wherein said lid comprises an apparatus for actuating said tube sealing mechanism.

32. The receptacle of claim 31, further comprising a gripping mechanism for said flexible tubing to prevent release of said flexible tubing from said cassette during rotation of said cassette.

33. The receptacle of claim 31, wherein said flexible tubing is provided with an adhesive.

34. The receptacle of claim 31, wherein said waste material is a soiled diaper.

35. A container for automated waste disposal, comprising:

a container bin compartment structurally configured to receive packaged waste material;

a container top compartment enclosing an apparatus for automated packaging said waste material in said container bin compartment;

a cassette comprising a rigid body formed by a tubular core defining a first space, said core open at top and bottom, a surrounding casing wall positioned to provide a second space between said tubular core and said casing wall and a base wall joining a lower end of said surrounding casing wall to a lower end of said tubular core, a length of flexible tubing packed in said second space;

one or more support member projecting from a side portion of said container top configured to retain said cassette permitting communication of said flexible tubing from said cassette to said container bin compartment, said support member comprising a flange structurally configured to allow said cassette to be rotated;

a combination of an automatically controlled motor-driven cassette turning mechanism which packages said waste material into individual packets in a flexible tubing inside said container bin compartment and an automatically controlled motor-driven plunging device operably configured to move a sealed packaged waste material and downwardly push said packaged waste material, thereby pulling a predetermined length of said flexible tubing to provide space for packaging of subsequent waste material;

a drive plate mounted on said cassette;

a drive gear operably engaged with said drive plate;

a motor mounted to said container top compartment and having an output shaft that rotates said drive gear when said motor is activated; and

a timing circuit activates said motor to rotate said cassette at a predetermined amount of time or a predetermined number of times.

36. A waste disposal apparatus comprising:

a container having a lid, said lid being movable between a closed position covering an opening into said container and an open position providing access into said opening;

a cassette comprising a rigid body formed by a tubular core defining a first space, said tubular core open at top and bottom, a surrounding casing wall positioned to provide a second space between said tubular core and said casing wall, and a base wall joining a lower end of said surrounding casing wall to a lower end of said tubular core, a length of flexible tubing packed in said second space;

a support member projecting from said side portion of said container to support said cassette in said container, said flexible tubing being dispensable from said cassette into a bottom portion of said container;

a tube sealing mechanism having a motor mounted to said lid, said tube sealing mechanism for engaging with said cassette to form and seal a packet of material in said flexible tubing by turning said cassette;

a plunging mechanism for pushing a sealed waste packet downwardly while pulling a length of said flexible tubing from said cassette, said plunging mechanism having a scissor link

assembly to move a plunger plate through said first space.

37. The waste disposal device of claim 36, wherein said scissor link assembly has a drive rod comprising a screw-like wound surface that is inserted into a nut-type center of a scissor link connecting linkage, and wherein said scissor link connecting linkage is moved along said drive rod by rotating said drive rod to move said plunger.

38. The waste container according to claim 1, wherein the apparatus for automatically controlling the twisting and automatically lowering comprises an electric motor.

39. A waste container, comprising:

a container body defining a waste bin, a lid and an opening that provides access to the waste bin;

a support mounted to the container body adjacent the opening, the support having a flange extending therefrom that is cylindrically configured for mounting a tubing cassette above the waste bin, wherein the support encloses less than all of the opening to the waste bin so that a waste packet is passed through the opening and into the waste bin, wherein the flange is configured so the tubing cassette is rotated by motor to create a twist closure in the tubing when enclosing a waste packet;

a tubing refill cassette mounted to the flange of the support wherein the tubing cassette is rotationally mounted to the flange, a drive plate mounted to the tubing cassette, a drive gear drivingly engaged with the drive plate, and a motor mounted to the waste container lid and having an output shaft that rotates the drive gear when the motor is activated;

a tube sealing means for forming waste packets by twisting a flexible tubing that is dispensed from the tubing refill cassette; and

a timing circuit for activating the motor to rotate the tubing cassette one of a predetermined amount of time or a predetermined number of times.

40. A waste container as recited in Claim 39, further including a manually operated switch for activating the motor.

41. A waste container, comprising:

a container body defining a waste bin, a lid and an opening that provides access to the waste bin;

a support mounted to the container body adjacent the opening, the support having a flange extending therefrom that is cylindrically configured for mounting a tubing cassette above the waste bin, wherein the support encloses less than all of the opening to the waste bin so that a waste packet is passed through the opening and into the waste bin, wherein the flange is configured so the tubing cassette is rotated by motor to create a twist closure in the tubing when enclosing a waste packet;

a tubing refill cassette mounted to the flange of the support;

a drive plate mounted to the tubing cassette, a drive gear drivingly engaged with the drive plate, and a motor mounted to the composite waste container and having an output shaft that rotates the drive gear when the motor is activated

a tube sealing means for forming waste packets by twisting a flexible tubing that is dispensed from the tubing refill cassette; and

a timing circuit for activating the motor to rotate the tubing cassette one of a predetermined amount of time or a predetermined number of times.

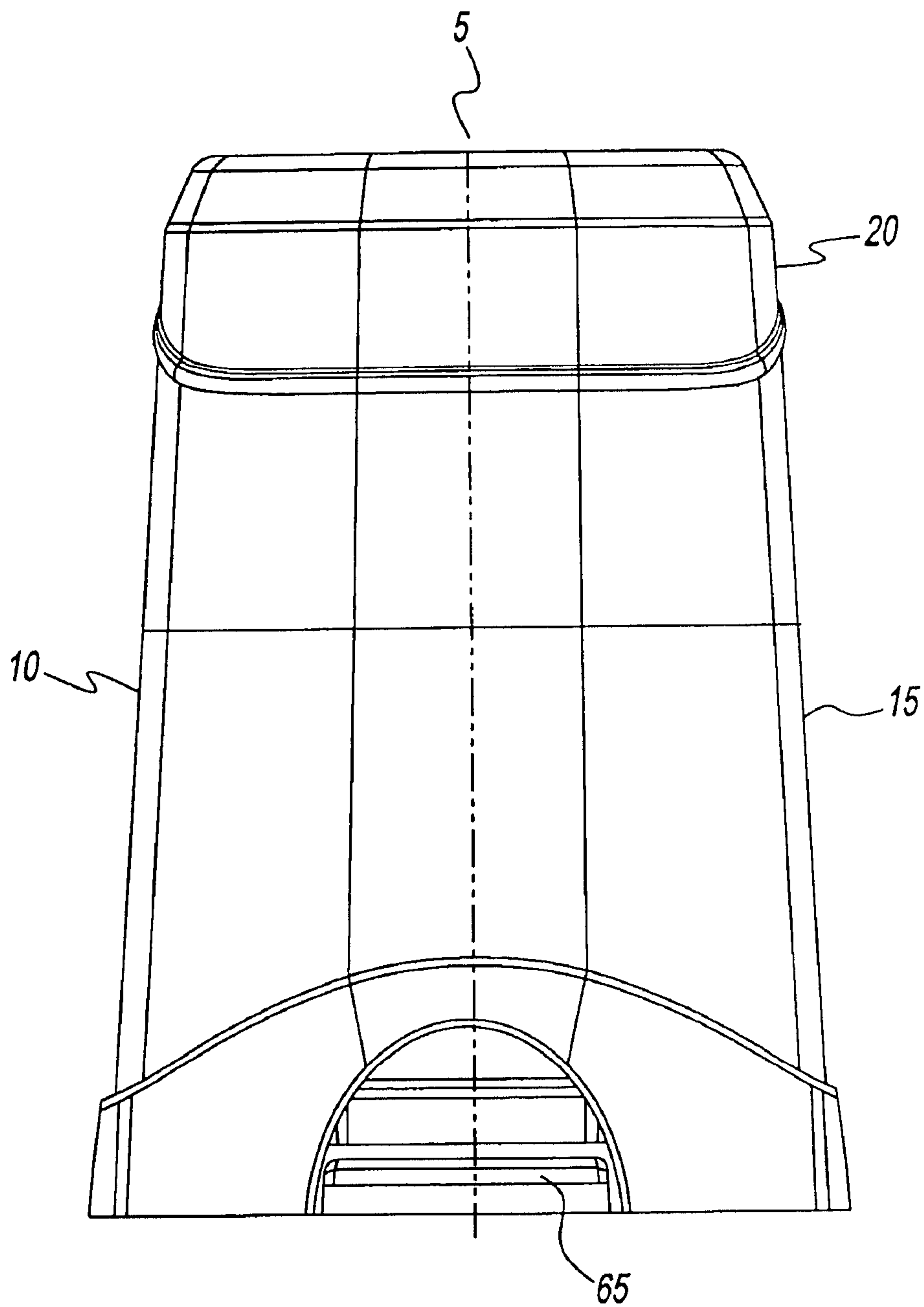


Fig. 1

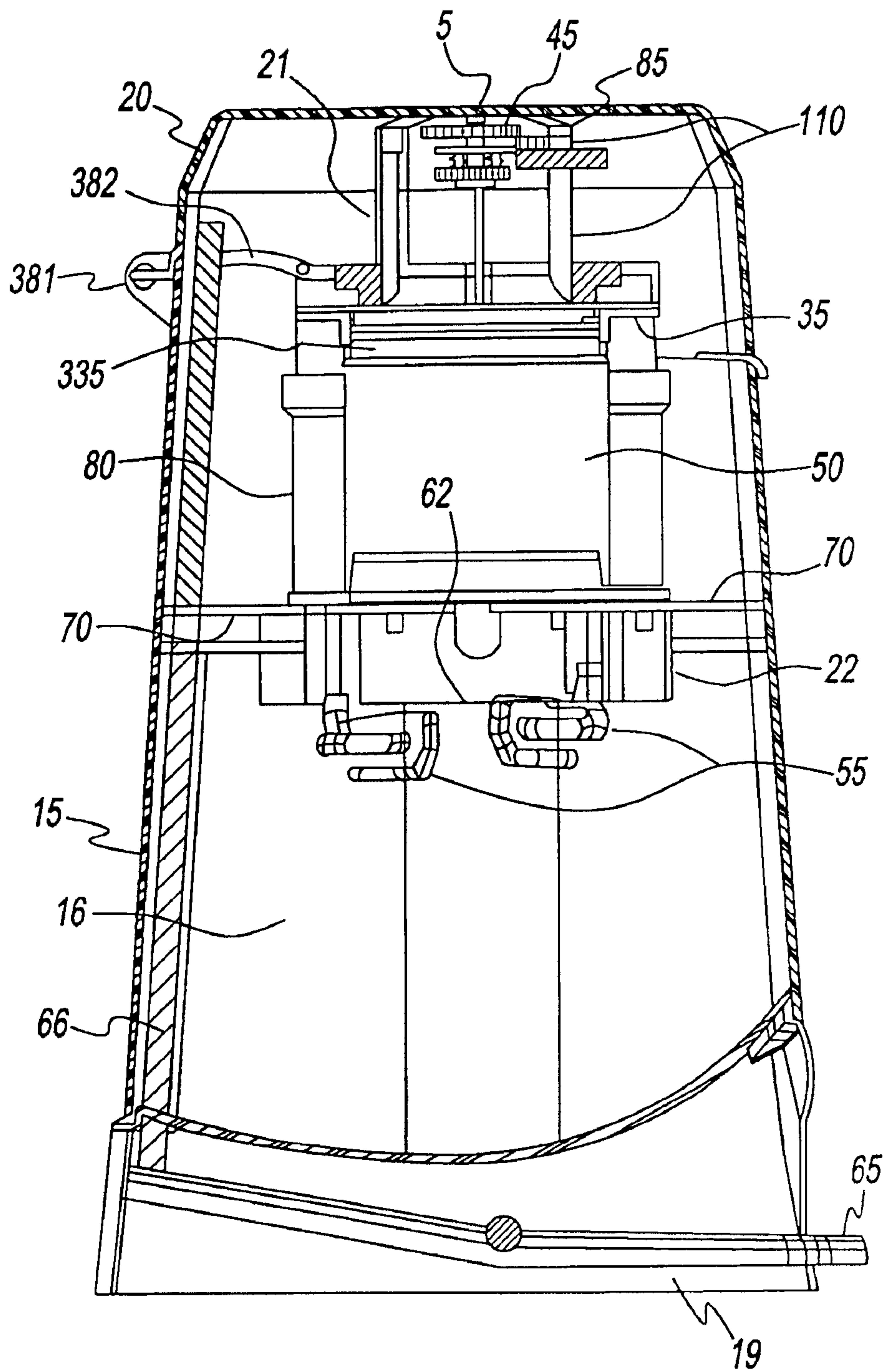


Fig. 2

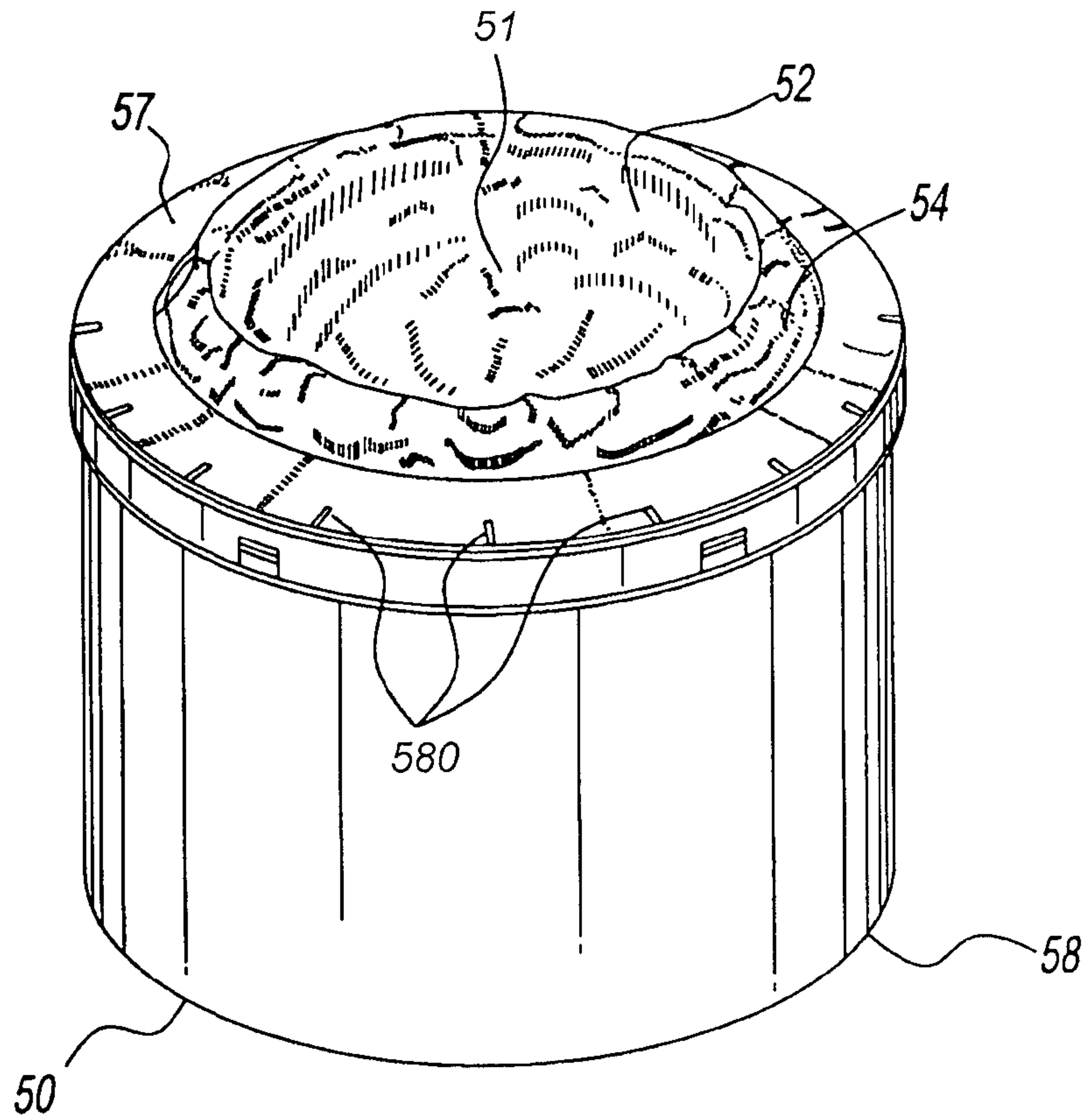


Fig. 3

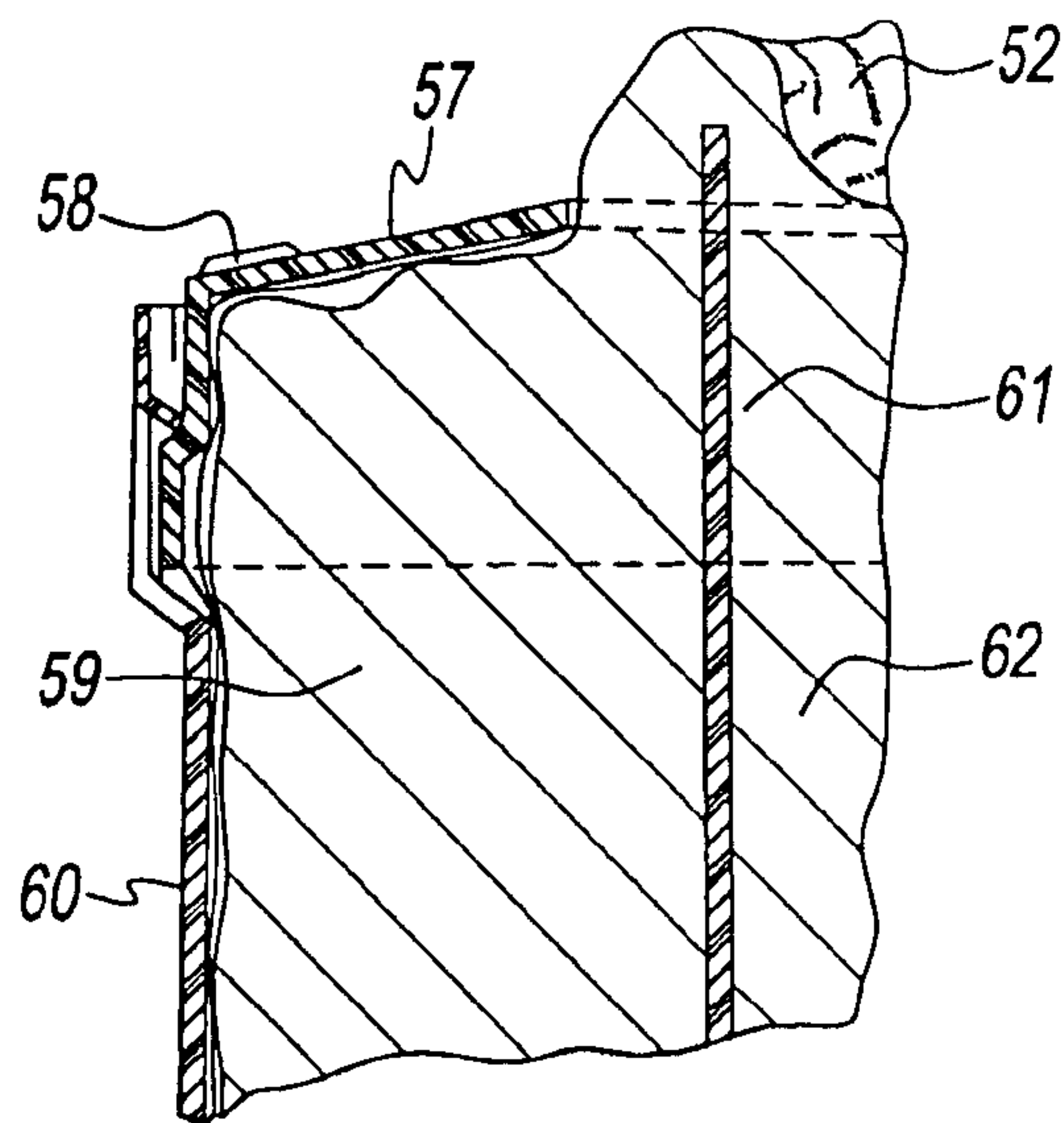


Fig. 4

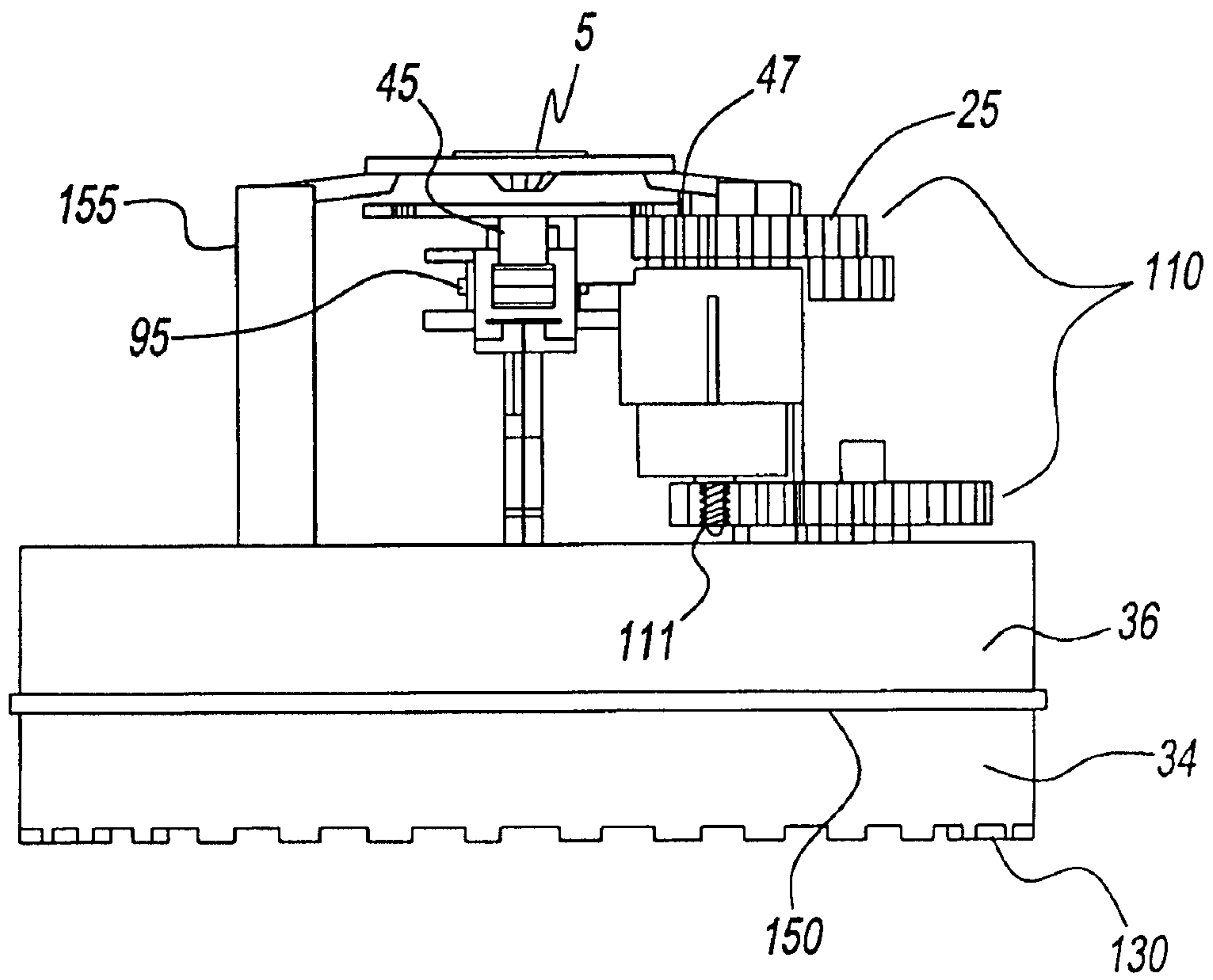


Fig. 5



Fig. 6

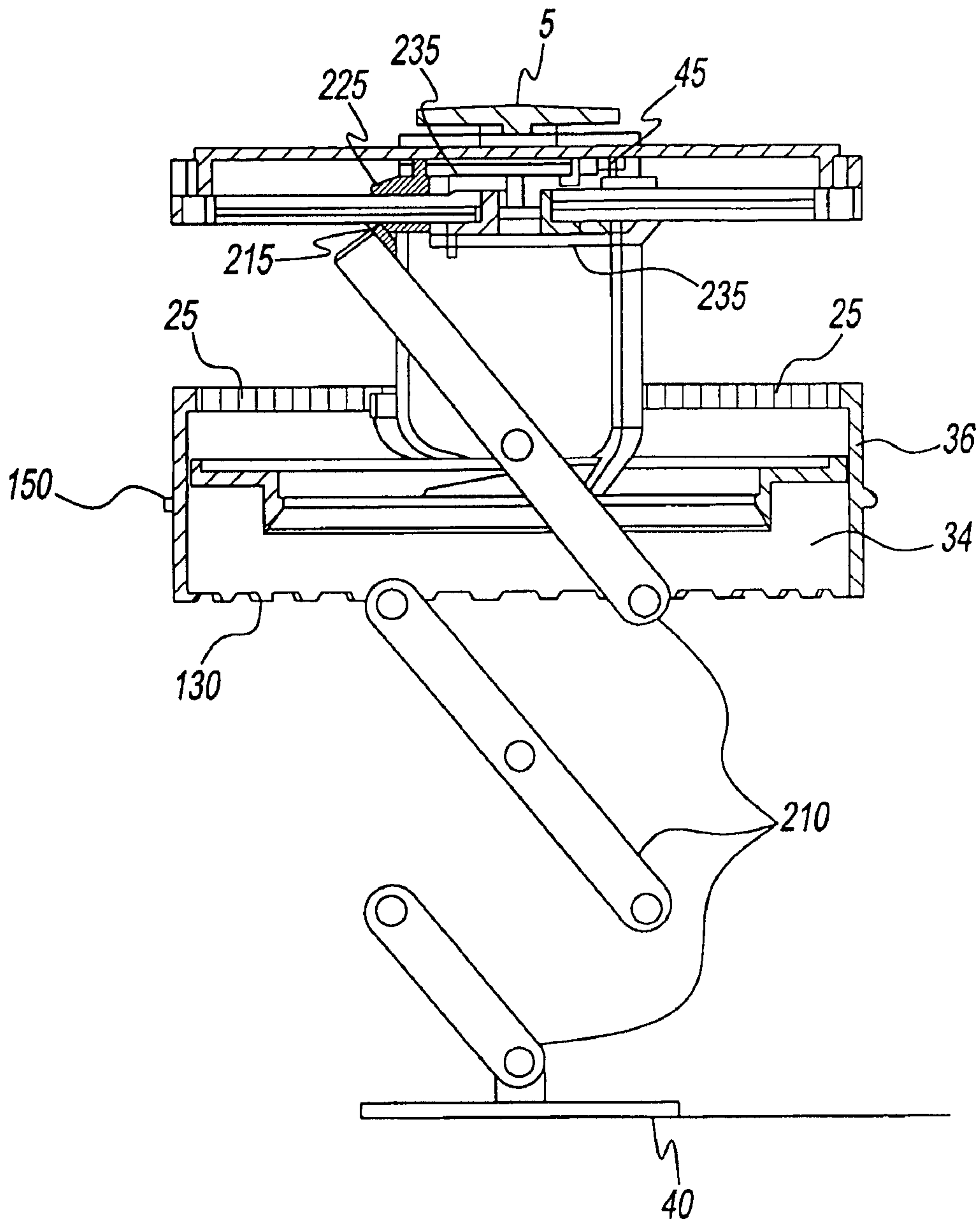


Fig. 7

