



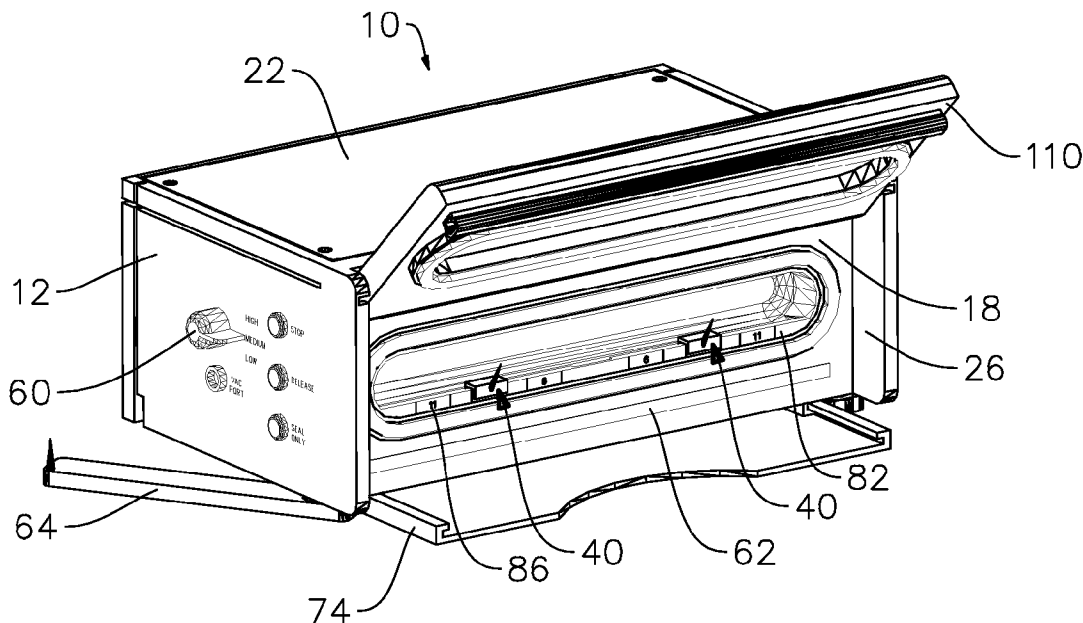
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(19) **United States**(12) **Patent Application Publication**
Lyman, JR.(10) **Pub. No.: US 2009/0255221 A1**(43) **Pub. Date: Oct. 15, 2009**(54) **SUSPENDED VACUUM SEALER APPLIANCE****Publication Classification**(76) Inventor: **Hugh Marion Lyman, JR.,**
Enumclaw, WA (US)(51) **Int. Cl.**
B65B 31/00 (2006.01)(52) **U.S. Cl.** **53/512**Correspondence Address:
HUGH M. LYMAN, JR.
27639 SE 401ST STREET
ENUMCLAW, WA 98022 (US)(57) **ABSTRACT**

A Suspended Vacuum Sealer Appliance is a packaging device for extracting ambient air from a vacuum bag that is filled with foods or other items and then sealing the bag, whereby the vacuum sealer is attached suspended under a shelf, cabinet or the like, a vacuum bag is held suspended vertically for filling with items outside of the appliance and the vacuum bag's open end is held vertically in the vertically oriented vacuum chamber opening by means of adjustable bag clips which holds the vacuum bag suspended in a vertical plane while ambient air is extracted and the bag sealed, and further providing a flat storage tray for vacuum bags within or on the appliance.

(21) Appl. No.: **12/136,871**(22) Filed: **Jun. 11, 2008****Related U.S. Application Data**

(60) Provisional application No. 61/124,033, filed on Apr. 14, 2008.



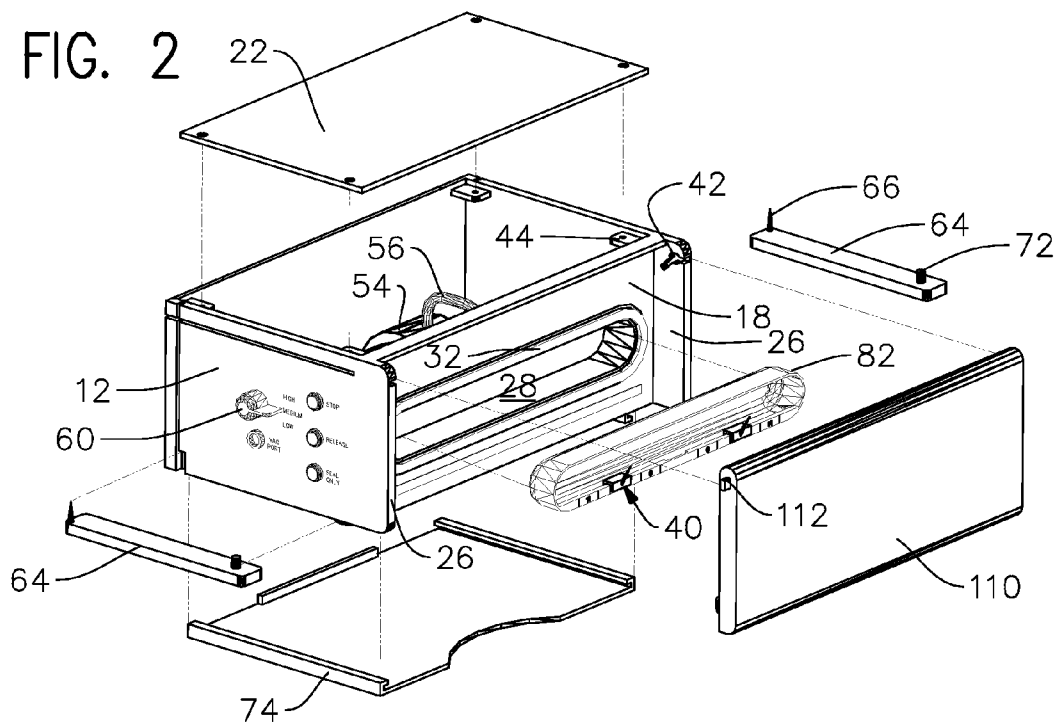
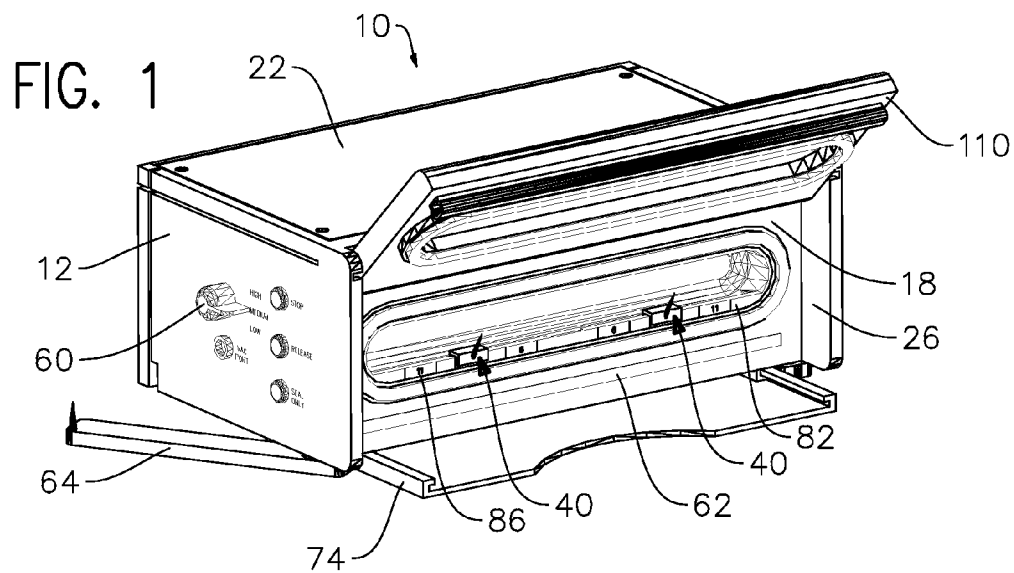


FIG. 3

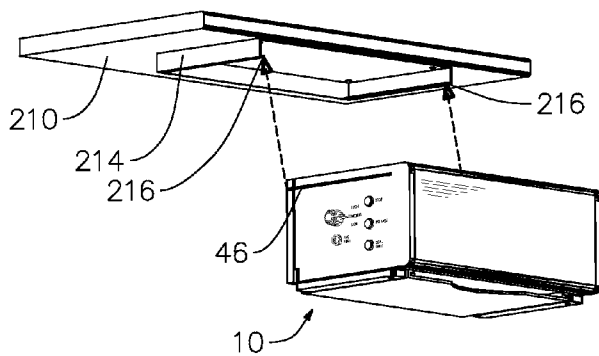


FIG. 4

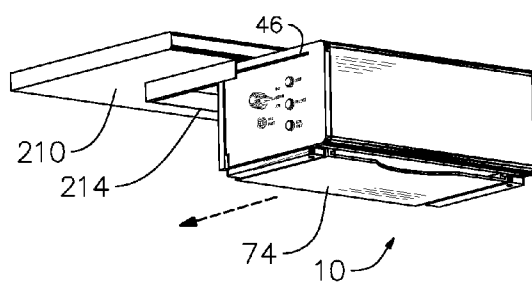


FIG. 5

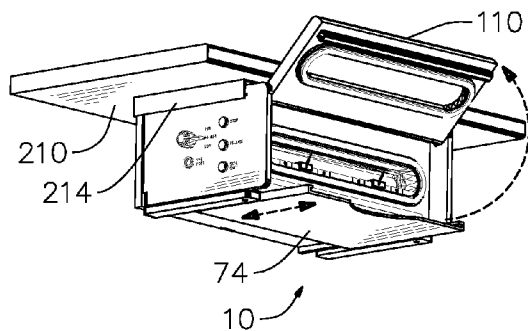
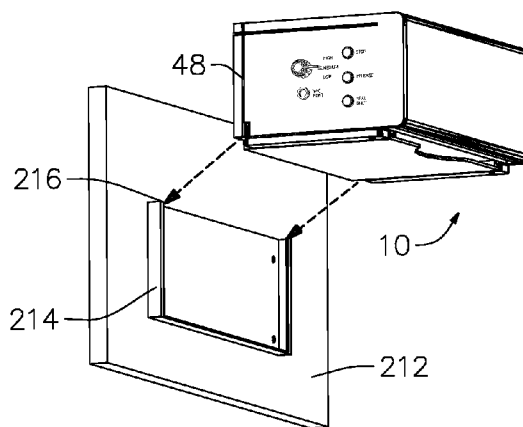


FIG. 6



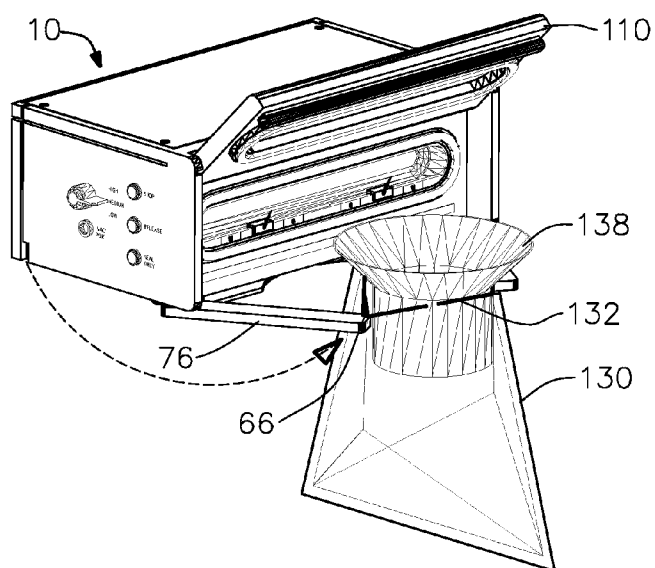


FIG. 7

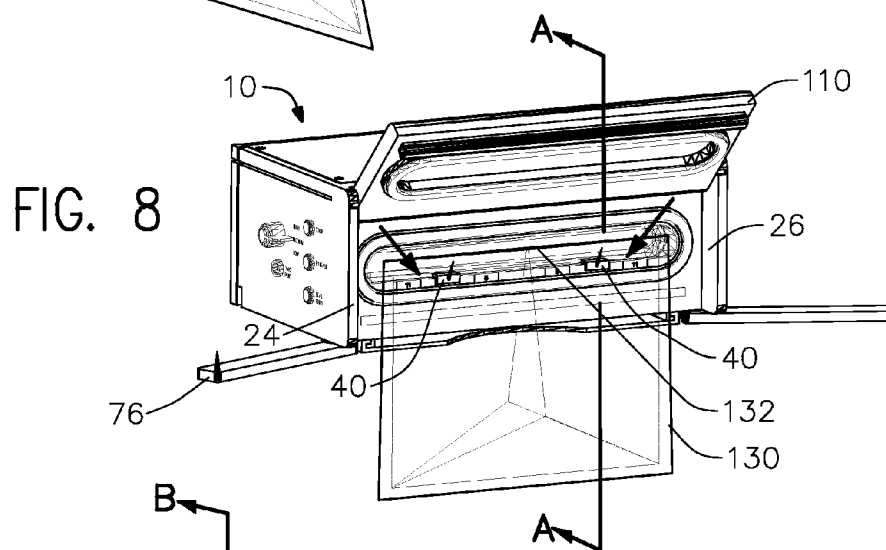


FIG. 8

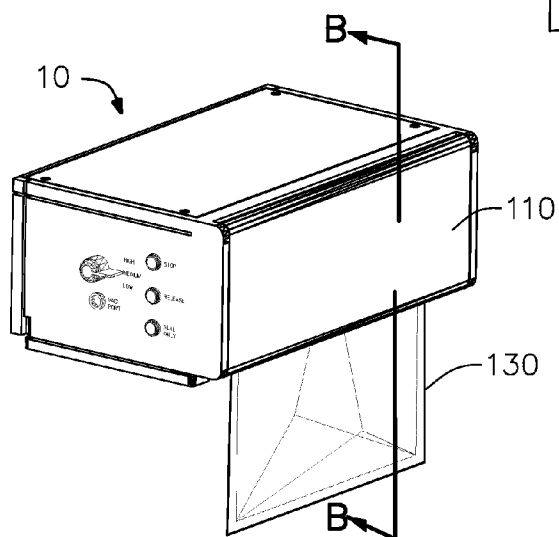
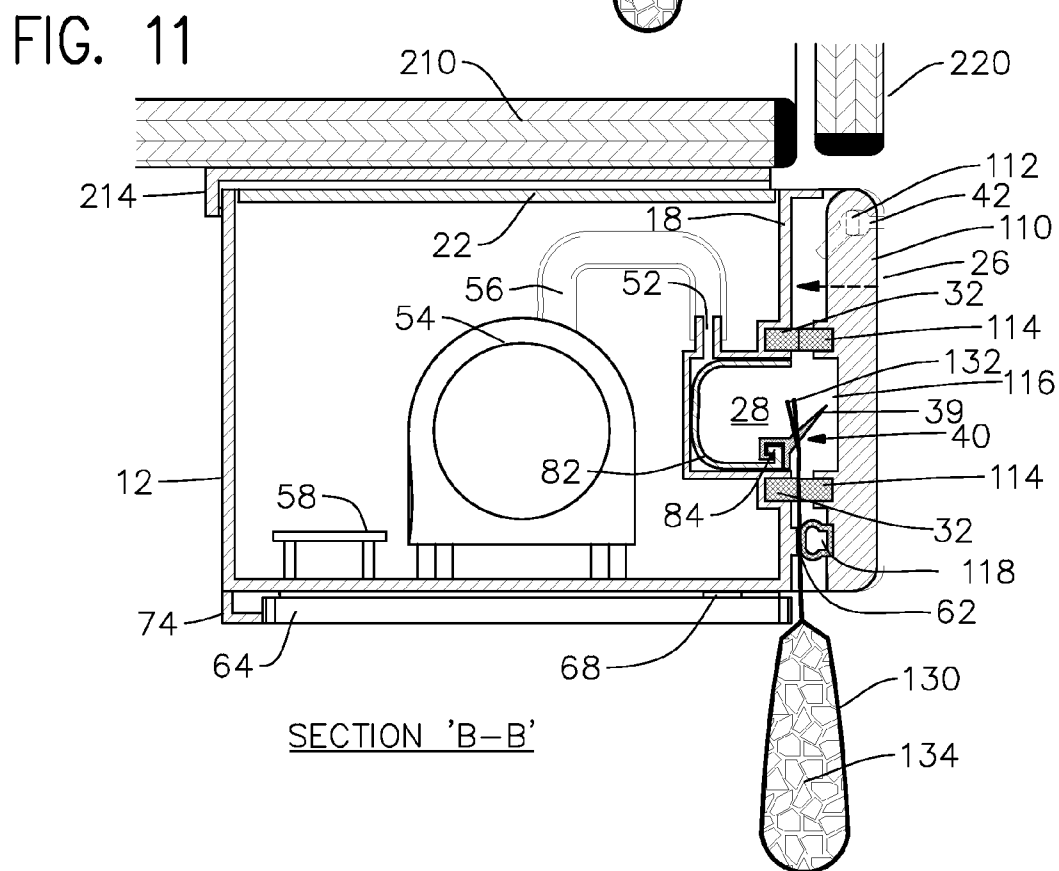
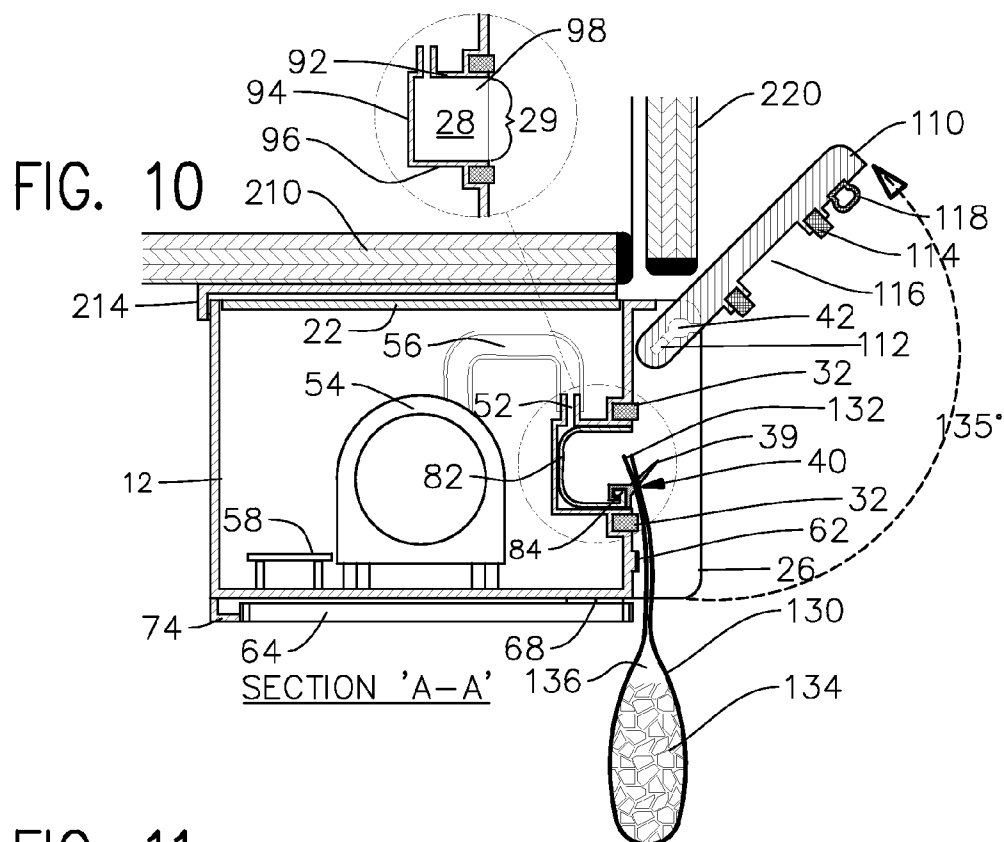


FIG. 9



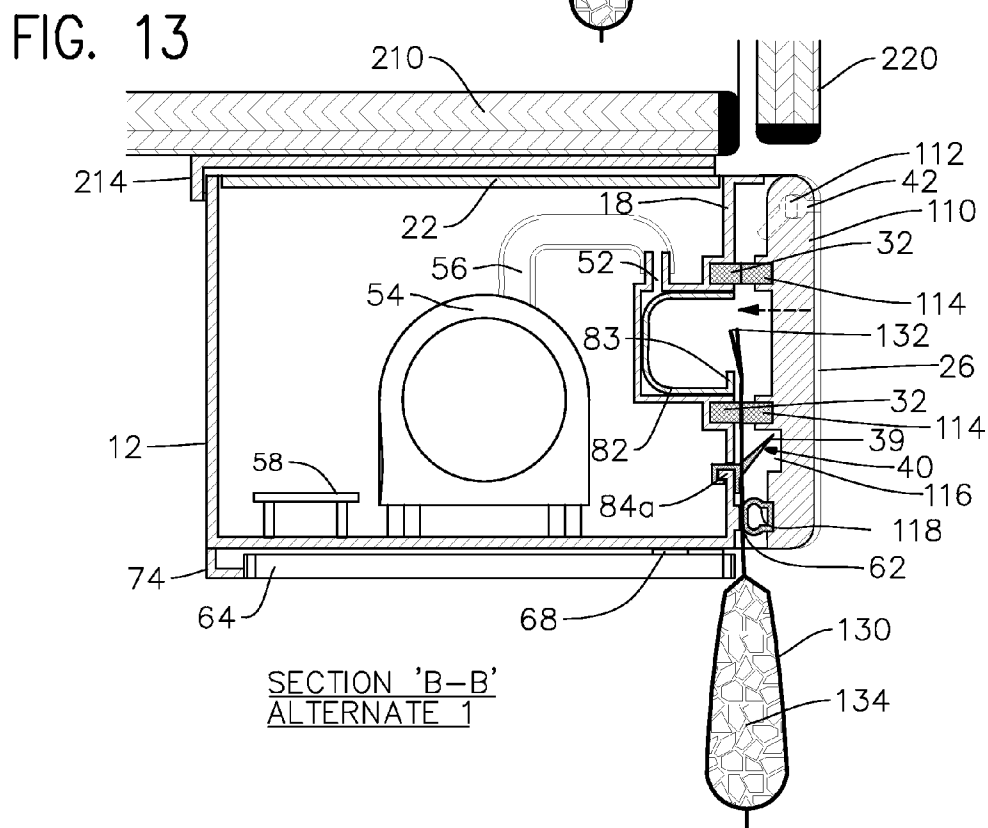
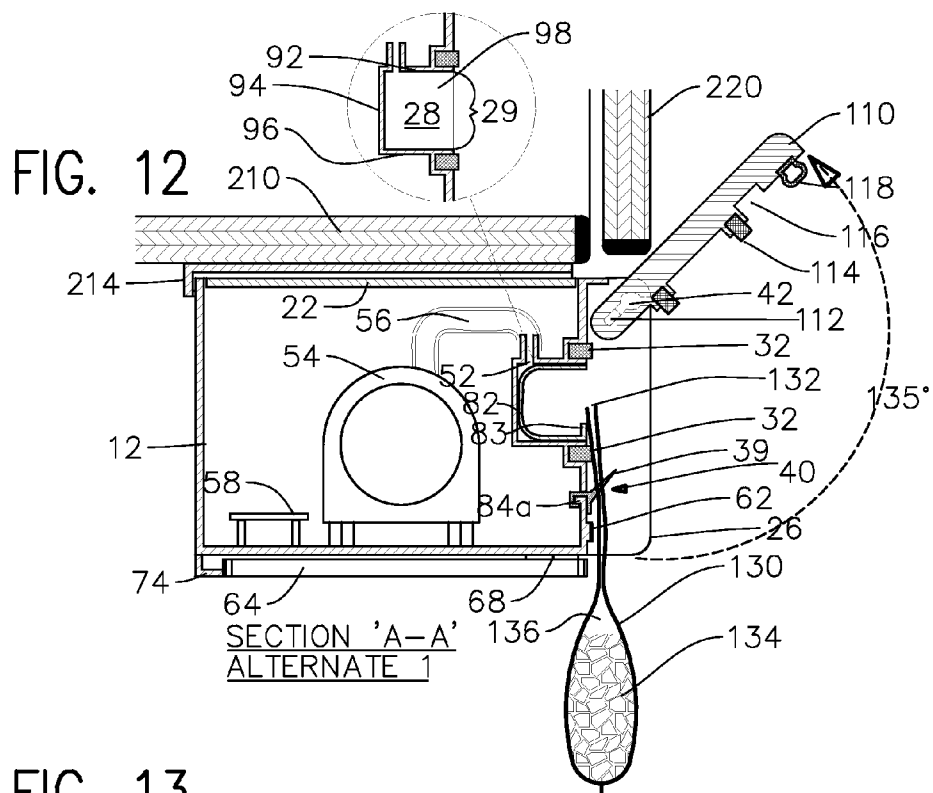


FIG. 14

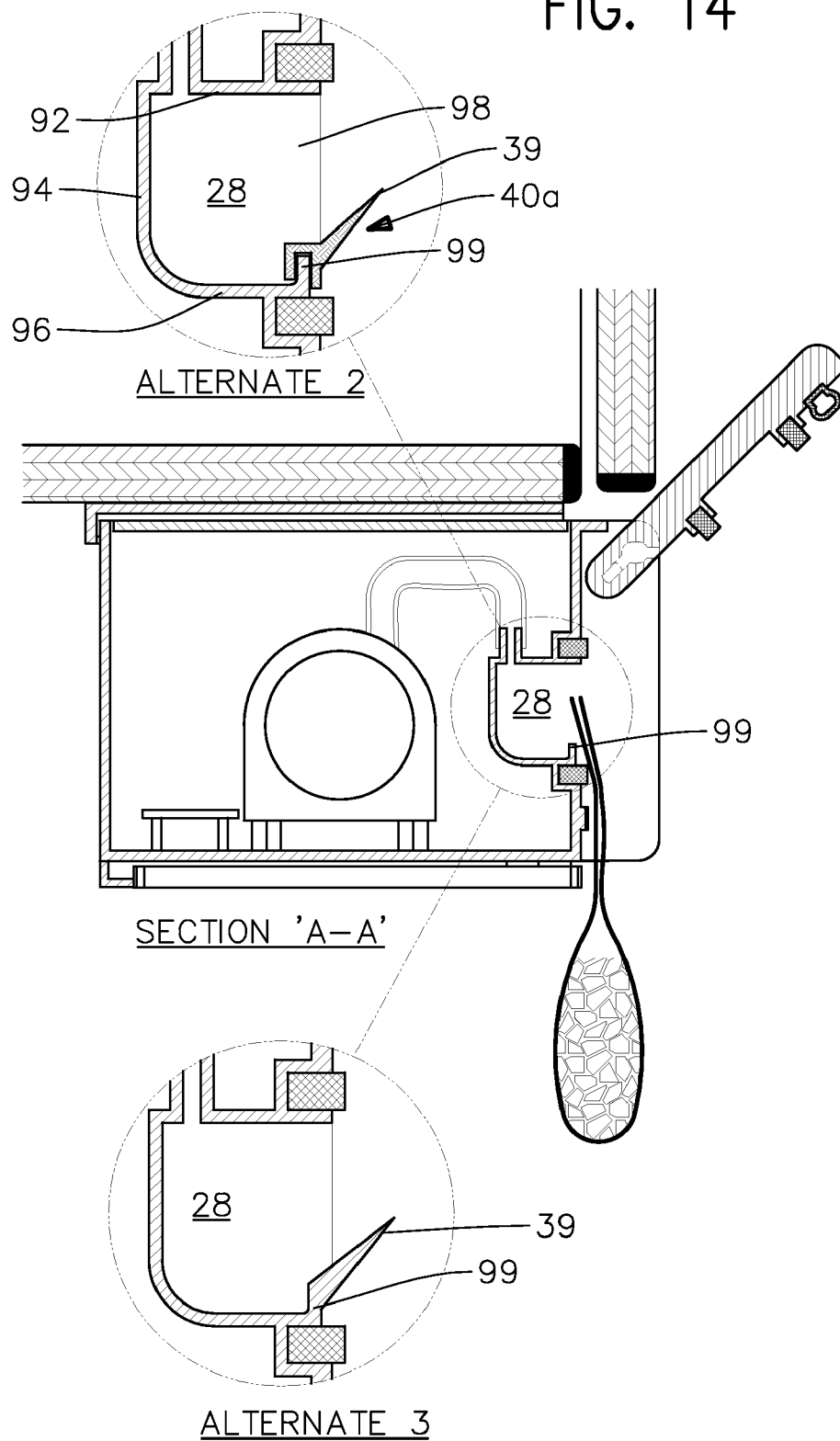


FIG. 15

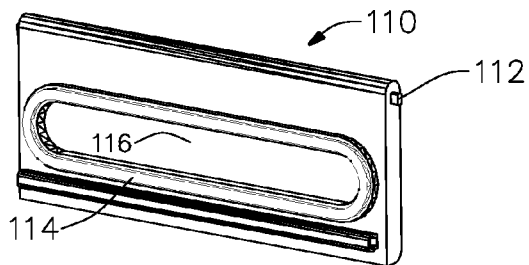


FIG. 16

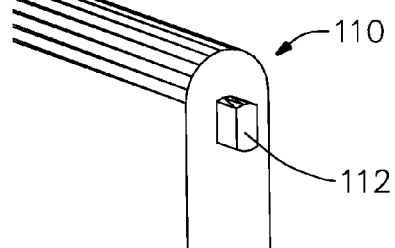


FIG. 17

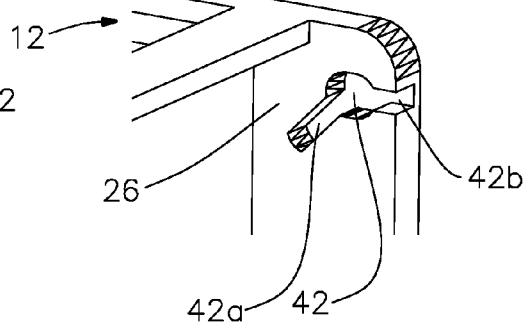


FIG. 18a

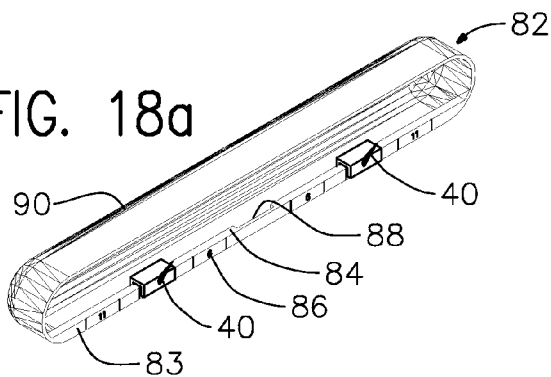


FIG. 18b

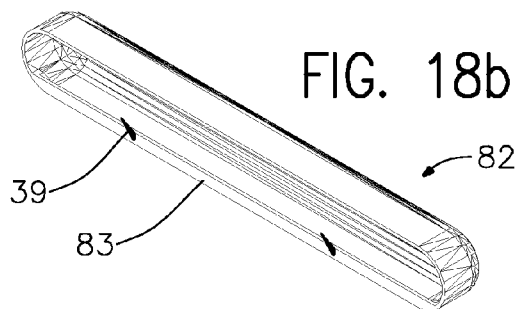


FIG. 18c

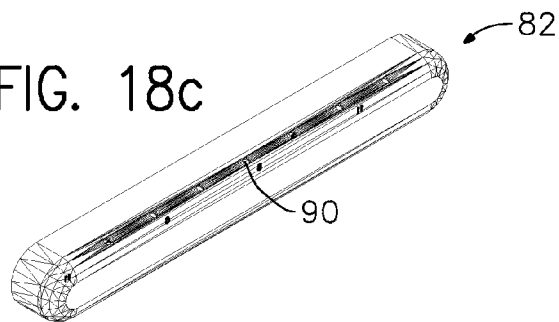


FIG. 19

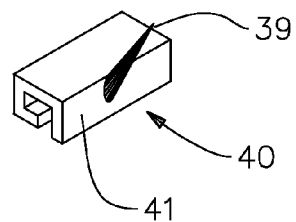
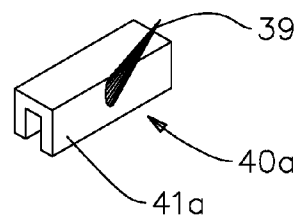
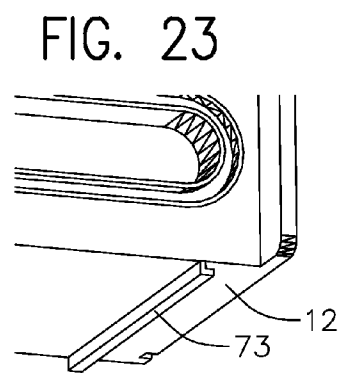
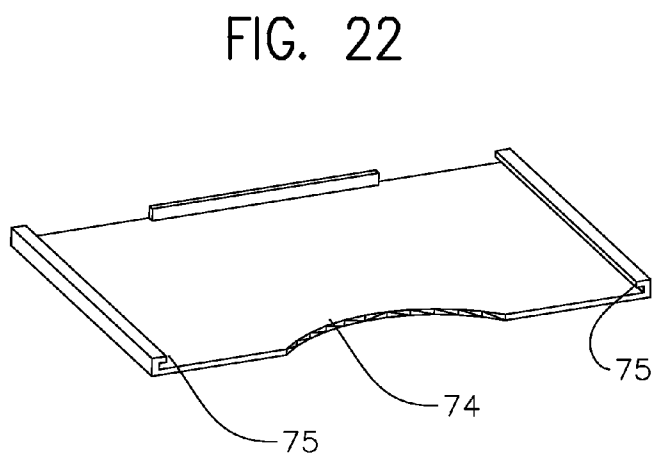
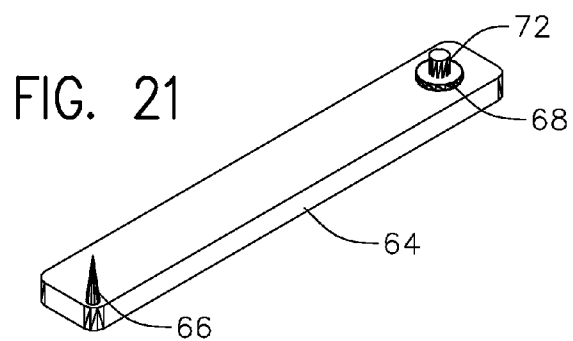
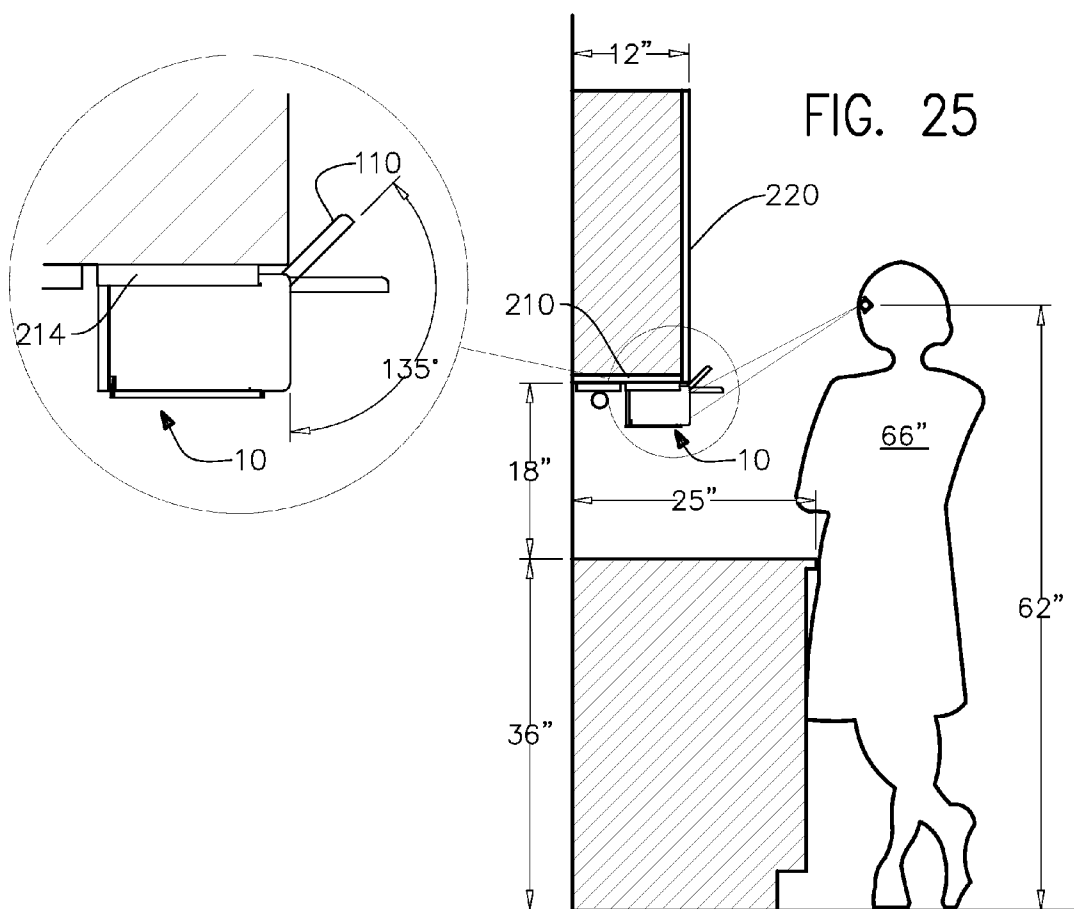
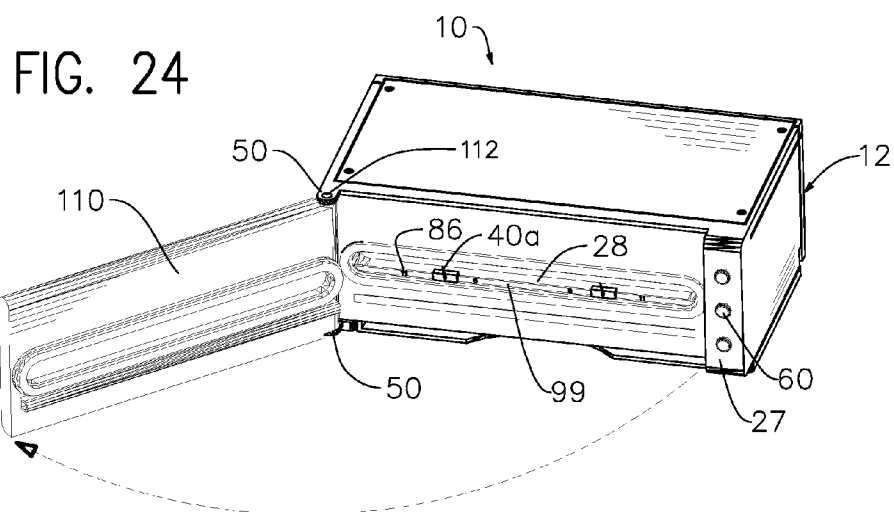


FIG. 20







SUSPENDED VACUUM SEALER APPLIANCE

RELATED APPLICATIONS

[0001] The present application is a continuation-in-part application of U.S. provisional patent application Ser. No. 61/124,033, filed Apr. 14, 2008, for SUSPENDED VACUUM SEALER, by Hugh M. Lyman, Jr., included by reference herein and for which benefit of the priority date is hereby claimed.

FIELD OF THE INVENTION

[0002] The present invention relates to a vacuum packaging and sealing appliance. More specifically, this invention relates to a vacuum sealer appliance that is attached suspended to the underside of a shelf, cabinet or the like, for vacuum packing and sealing various types of containers, wherein the invention provides a means attached to or within the appliance for positively holding a vacuum storage bag in a vertical position outside of the appliance, wherein both hands of the user are free for filling the bag with items. The appliance holds the open end of a vacuum storage bag positively suspended vertically in a vertical or near vertical vacuum chamber opening for evacuating ambient air from the vacuum bag and then sealing the bag. Further, provided is a storage tray for storing flat vacuum bags.

BACKGROUND OF THE INVENTION

[0003] Vacuum packaging and sealing appliances have been used for many years to package and seal containers both domestically and commercially. The appliance extracts ambient air from a container by means of a vacuum source and then seals the container while the vacuum is maintained in the container. Various types of containers are readily available for this process, such as glass jars, plastic containers and plastic vacuum bags. Many benefits are derived from this process. Foods are preserved for longer periods of time. Items subject to tarnishing can be protected from tarnishing by sealing them void of oxygen. Many other commodities can be kept fresh by keeping them void of ambient air.

[0004] Typically, vacuum sealing appliances are operated by isolating the open end of a container, extracting the ambient air from the container and then sealing the container. Several appliances known to the inventor are currently available in the market place, such as, FoodSaver, Seal-A-Meal, Deni, Sears, Black & Decker, Futura and Vacuum Sealer Pro. These appliances are all portable table top appliances and the vacuum bags are positioned outside the appliance in a horizontal position. For vacuuming and sealing vacuum bags they all provide a means for positioning a vacuum bag's open end in communication with a vacuum source. These appliances all have a base and a pivotal lid or hood, wherein the lid closes over the open end of a vacuum storage bag, isolating the open end in a vacuum chamber or on a vacuum nozzle. As all of these appliances are portable and for table top use they are normally stored away in a closet or the like, therefore they are time consuming to retrieve, setup and breakdown for storage, thus they are seldom used when only a few items such as meal leftovers could be vacuum packaged.

[0005] Another problem with these appliances is that the vacuum chamber or vacuum nozzle therein is in or near a horizontal position and not in the same plane with the table top the appliances are setting on. Therefore, the vacuum bag filled with items rests down on the table top below the hori-

zontal plane of the vacuum chamber or nozzle, making it difficult to hold and maintain the open end of the bag in the vacuum chamber or nozzle. To solve the problem, a prop or riser plate is required, such as a book or cutting board to elevate the bag to a position that the operator can hold the open end of the bag in the position of the vacuum chamber or nozzle. (See page 30 "Vacuum Sealer Guide" by Roger Seher). WO 2007/091822 Patent issued to Sung discloses a drawer provided in the front of the appliance for holding the vacuum bag and contents. Not addressed in Sung patent is the evident advantage of elevating the bag and contents to a closer horizontal plane. Even then, the vacuum bag's open end has the tendency to shift while the lid or hood is being closed over the open end of the bag, thus requiring additional positioning for proper vacuuming and sealing.

[0006] Another problem with horizontal positioned bags is a tendency to get debris from the content items around the inside edges of the bag where the bag is in contact with vacuum chamber seals and the heat strip wire, whereas the vacuum and seal can be negated due to contamination. A clean dry surface on the inside open end of the bag down to where the seal is performed is desired to obtain a good vacuum and a good seal. Therefore, it is necessary to clean the inside surface of the bag with a towel when packaging contents that tend to be messy, therein requiring an additional step in the process of vacuuming and sealing a bag. This problem is addressed in Roger Seher's eBook "The Vacuum Sealer Guide", pages 29 and 30, (www.VacuumSealerGuide.com) where he recommends a paper cut funnel and a coffee can to support the bag in a vertical position for filling in order to keep the inside of the bag free of contaminants.

[0007] U.S. Pat. No. 4,179,862 issued to Landolt discloses a horizontal table top vacuum sealer in which a spring rod is attached to the hood, wherein the rod engages the vacuum bag below the open end to depress it into a vacuum chamber to hold the open end of a bag in the chamber. However, this appliance is designed to have the bag and contents horizontal on the inside of the appliance and the rod may not be a positive restraint for holding a bag in a vertical position.

[0008] U.S. Pat. No. 4,561,925 issued to Skerjanec et al presents a vacuum sealer appliance which claims to hold a bag's open end within the appliance for filling with items. One problem with this appliance is that one end of the bag must be held by one hand of the operator thereby leaving only one hand free to fill the bag, which in the case of some food items this could be very messy and present the potential of spilling said contents into the appliance. Also, debris from the contents being filled can accumulate in the area of the bag where it is to be sealed and thereby cause the seal to fail. Further, Skerjanec et al addresses a wall mounted appliance as prior art. It would be evident to anyone ordinary skilled in the art to know that many table top appliances could be mounted to a wall, wherein the bag would then hang in a vertical position whether the vacuum chamber is horizontal or vertical. This is indicated by Deni Magic Vac Model 1715 in their literature, wherein the appliance can be mounted to a wall by means of holes placed in the housing, however, it is not known if it mounts horizontally or vertically. Further, it is not recommended as there is no means to hold the open end of a vacuum bag in position of the vacuum chamber for vacuuming and sealing. Other similar table top appliances disclose that their appliance can be wall mounted, however the same applies as above, in that there is no mention of how the device

is mounted, vertically or horizontal, other than they provide holes in the case for such mounting.

[0009] Referring again to Skerjanec's appliance. It requires a suction nozzle orifice component to extract the ambient air from the bag. This system is widely used in many appliances. The problem with a nozzle orifice is that the rubber seals that creates the vacuum closure compresses around the nozzle orifice and eventually becomes distorted to where a vacuum is difficult to maintain before sealing the bag. Further, Skerjanec's appliance could not be mounted under a shelf, cabinet or the like.

[0010] Another common method today is the use of a vacuum chamber, as addressed by Landolt, which can evacuate the ambient air by use of special air tight vacuum bags that have ribs embossed on at least one side of the bag, as disclosed in U.S. Pat. No. 2,778,171 issued to Taunton in 1957, U.S. Pat. No. 4,756,422 issued to Kristen in 1988 and U.S. Pat. No. 6,883,665 issued to Ahn in 2005.

[0011] U.S. Pat. No. 4,941,310 issued to Kristen in 1990, Patent No. WO 2004/048203 issued to Ahn in 2004 and Patent No. WO 2007/091822 issued to Sung in 2007 all disclose vacuum sealing appliances that have a vacuum chamber (space) that permits the use of embossed vacuum bags. These bags allow the escape of ambient air from the open end of a bag held in a vacuum chamber (space) while the vacuum source holds the vacuum until the bag is sealed. Further, these devices are all table top appliances with the vacuum chamber oriented in a horizontal plane and not intended for suspension under a shelf, cabinet or the like. Further, there is no provision for holding the open end of the bag prior to closing the lid.

[0012] A problem encountered with vacuum chambers as well as vacuum nozzles has been that the open end of the vacuum bag is difficult to keep oriented correctly in the chamber. Referring again to U.S. Pat. No. 4,941,310 issued to Kristen, column 3, line 65, states his vacuum chamber is adapted to hold the panels of the bag. This is only true after pressure is applied from the hood and a vacuum is generated in the vacuum chamber, wherein the gaskets closing the vacuum chamber clamp the bag's open end and hold it secure, however, the bag's open end is still free to dislodge before gasket pressure is introduced and requires continual adjusting as the vacuum bag with contents is laid in a horizontal plane.

[0013] U.S. Pat. No. 3,866,390 issued to Moreland et al discloses a wall mounted vacuum sealing device wherein the vacuum bag is held in a vertical position. The means for holding the bag in the vertical position are pins which engage perforated holes in the sides of the bag. This means requires special bags and is not adjustable for different width bags. Further, this device has no vacuum chamber and can only be wall mounted.

[0014] U.S. Pat. No. 6,848,234 issued to Sung et al discloses an appliance that can be wall mounted. Also provided are rotating grip pins for holding the bag either by pre-punched holes in the bag or clamps. This design requires complicated mechanical gears and levers. Further, it could only hold one size bag and could not be mounted under a shelf, cabinet or the like, as the filler means rotates over the top of the device. Also, this device is only for sealing a bag and provides no means for vacuum extracting ambient air from the bag.

[0015] U.S. Patent Application Publication No. 2005/0022473 A1 by Small teaches a bag clamp that opens and closes to hold a bag's open end in a vacuum chamber, prior to

closing the lid. The problem with this devise is it is complicated with moving parts and any contaminates from items being packaged in the horizontal position will have a tendency to contaminate the moving parts of the clamps and make them inoperative. Further, this appliance is for table use and cannot be mounted under a shelf, cabinet or the like.

[0016] U.S. Patent Application Publication No. 2005/0205455 by Harrison discloses not only an embossed vacuum bag, but also two variations of an appliance for under counter mounting with pull in pins to hold the vacuum bag. The problem with this arrangement is evident in that the pull in pins **170a** and **170b** (Para [0091]) engage the front cover **154** and do not hold the vacuum bag until the front cover is closed, requiring extensive mechanical and electrical components for its operation. Further, the operator must hold a filled vacuum bag in place (this takes two hands) until the sensors activate the pull in pins. As the sensors are in the vacuum chamber (FIG. 15) they will get contaminated with any liquids from the contents in the vacuum bag during the evacuation of ambient.

[0017] In Paragraph [0155], Harrison addresses optional locating pins **358** that may pierce the bag as means to hold the vacuum bag. No mention of where the locator pins are positioned on the device, other than they are positioned outside of the sealed area of the vacuum storage bag. Not known is how the pins are affixed. The locating pins cannot pierce the vacuum bag prior to the hinged operating vacuum clip mechanism closing (FIG. 27). This alternate means requires the use of a vacuum bar (vacuum nozzle).

[0018] In summary of Harrison's disclosures it is noted, that excessive mechanical, electrical and pneumatic components are required to accomplish the intended application by use of many moving parts, springs, solenoids, latches, locking pins, bars, control valves, check valves, sensors, bladders and magnets. It would be evident that this device would be comparatively expensive to produce and requiring extensive maintenance and operator instructions. As Harrison's illustrations are only outline drawings it may be difficult for any ordinarily skilled in the art to understand, make, and use the device.

[0019] U.S. Patent Application Publication No. 2006/0117711 by Higer discloses a vacuum packaging appliance which can be mounted under a cabinet. The proposed invention discloses a hinged mechanism similar to Harrison's, for holding a vacuum storage bag in a slot arrangement, wherein the vacuum bag's open end is inserted in a horizontal plane and held by gripping posts. Behind the hinged mechanism is a vacuum chamber with or without a removable tray for accumulating liquids from a filled vacuum bag as vacuum suction is performed. Liquids always accumulate in the vacuum chamber to the degree of the liquid content on the product being vacuum packed.

[0020] Therefore, the removable drip tray which can be easily cleaned is an important accessory. The problem with Higer's device is that the hinged gripping mechanism is in front of the vacuum chamber that holds the removable drip tray, exposing the hinged mechanism to contamination from liquids being sucked into the vacuum chamber.

[0021] Higer addresses lidless and lidded variations to his device. The lidded configuration illustrated in FIG. 9 indicates the lid would rotate and then slide above the device to provide visual contact of the insertion slot.

[0022] Higer's device requires excessive components such as, springs, latching mechanisms, bladders, hinges, magnets, shutters and balloons. It would be evident that this device

would be comparatively expensive to produce and require extensive maintenance and operator instructions. As Higer's illustrations are only outline drawings it may be difficult for any ordinarily skilled in the art to understand, make, and use the device.

[0023] Heretofore, no known prior art addresses or discloses an engineered simplistic vacuum sealing appliance that provides for suspended mounting or attaching to the underside of a shelf, cabinet or the like and is easily removable.

[0024] Heretofore, no known prior art addresses or discloses a vacuum packaging sealing appliance that provides within the appliance a simple positive means for holding a bag suspended vertically for filling from outside of the appliance, wherein both hands of the operator are free to perform the filling operation.

[0025] Heretofore, no known prior art addresses or discloses a vacuum sealing appliance that provides a simple positive means for holding the open end of variable width filled vacuum bags in a vertical or near vertically oriented vacuum chamber opening. Further, no known prior art addresses or discloses a vacuum sealing appliance that provides a means for storing a flat vacuum bag therein.

[0026] It is therefore an object of the invention to provide a vacuum sealer that mounts suspended under a shelf, cabinet or the like and is instantly available for use, eliminating setup and breakdown time.

[0027] It is another object of the invention to provide a vacuum sealer appliance that is easily removable from the underside of a shelf, cabinet or the like, for portability.

[0028] It is another object of the invention to provide a vacuum sealer appliance that has a vertical or near vertical positioned vacuum chamber with a vertical open face, with the vacuum source providing suction from the top of the vacuum chamber, thereby reducing the suction of liquids into the vacuum source.

[0029] It is another object of the invention to provide a vacuum sealer appliance that provides a means for holding a vacuum bag outside of the appliance suspended vertically for filling with items.

[0030] It is another object of the invention to provide a vacuum sealer appliance that provides a means for holding various widths of vacuum bags suspended vertically with its open end positively positioned in a vertical vacuum chamber opening prior to a vacuum being generated.

[0031] It is another object of the invention to provide the appliance with a case door that can be opened either vertically and locked, horizontally, or be completely removed.

SUMMARY OF THE INVENTION

[0032] In accordance with the present invention, there is provided a suspended vacuum sealer appliance for extracting ambient air from a vacuum bag that is filled with items and then sealing the bag, whereby the vacuum sealer is attached suspended under a shelf, cabinet or the like, wherein a vacuum chamber is positioned vertical or near vertical at or near ninety degrees from horizontal, with an open face oriented vertical or near vertical. The appliance is provided with bag arms that extend and retract from the appliance case. The arms are extended and each side panel of a vacuum bag is secured to the arms by clips, holding it vertical and open for easy filling. The vacuum bag is then filled and removed from the arms. With the case door open the bag is attached to bag clips within or below to the vacuum chamber, thereby posi-

tively holding the open end of various width vacuum bags in the vacuum chamber opening, prior to the case door being closed, ready for vacuuming and sealing. The case door is closed and the operation is commenced in a normal sequence of extracting ambient air there from, then sealing the bag. Further provided is a bag tray attached to the case housing for storing flat vacuum bags.

BRIEF DESCRIPTION OF THE DRAWINGS

[0033] A complete understanding of the present invention may be obtained by reference to the accompanying drawings, when considered in conjunction with the subsequent, detailed description, in which:

[0034] FIG. 1 is a trimetric 3 dimensional top front view of the invention with the case door open.

[0035] FIG. 2 is a trimetric 3 dimensional exploded top front view of the invention.

[0036] FIG. 3 is a trimetric 3 dimensional bottom front view of the invention being ready to mount under a shelf.

[0037] FIG. 4 is a trimetric 3 dimensional bottom view of the invention engaged on the mounting bracket.

[0038] FIG. 5 is a trimetric 3 dimensional bottom front view of the invention fully installed with the case door open and the sliding bag tray partially extended.

[0039] FIG. 6 is a trimetric 3 dimensional bottom front view of the invention being mounted to a vertical wall.

[0040] FIG. 7 is a trimetric 3 dimensional top front view of the invention showing the pivotal arms extended, holding a vacuum bag with a filler funnel insert in the vacuum bag.

[0041] FIG. 8 is a trimetric 3 dimensional top front view of the invention showing a vacuum storage bag placed on the adjustable bag clips ready for vacuum sealing.

[0042] FIG. 9 is a trimetric 3 dimensional top front view of the invention with a vacuum bag position and door closed in the vacuum sealing position.

[0043] FIG. 10 is a section view of the invention taken along lines A-A in FIG. 8 with the adjustable bag clips assembled on a drip tray in the vacuum chamber, case door open and the open end of a filled vacuum bag held vertically in the front open side of the vacuum chamber.

[0044] FIG. 11 is a section view of the invention taken along lines B-B in FIG. 9 with the adjustable bag clips assembled on the removable drip tray in the vacuum chamber. With the case door closed the vacuum chamber is sealed from ambient air, whereby ambient air can be extracted from the vacuum bag.

[0045] FIG. 12 is a section view of alternate 1 of the invention taken along lines A-A in FIG. 8 with the adjustable bag clip assembly positioned between the vacuum chamber and heat strip, case door open and the open end of a filled vacuum bag held vertically within the vacuum chamber.

[0046] FIG. 13 is a section view of alternate 1 of the invention taken along lines B-B in FIG. 9 with the adjustable bag clip assembly between vacuum chamber and heat strip, case door closed in position for extracting ambient air from vacuum bag and sealing vacuum bag.

[0047] FIG. 14 is a section view of the invention taken along lines A-A in FIG. 8 showing alternates 2 and 3, wherein illustrated are different options of bag clip arrangements.

[0048] FIG. 15 is a trimetric 3 dimensional back view of the door assembly.

[0049] FIG. 16 is an isometric close up view of the top right corner of the invention case door.

[0050] FIG. 17 is an isometric 3 dimensional close up view of the top right corner of the invention case housing illustrating the filister design.

[0051] FIG. 18a is an isometric 3 dimensional front view of the novel drip tray with adjustable bag clips.

[0052] FIG. 18b is an isometric 3 dimensional front view of the novel drip tray with fixed bag clips.

[0053] FIG. 18c is an isometric 3 dimensional back view of the drip tray illustrating perforation in the top rear corner.

[0054] FIG. 19 is an isometric 3 dimensional front view of an adjustable bag clip.

[0055] FIG. 20 is an isometric 3 dimensional front view of an adjustable bag clip.

[0056] FIG. 21 is an isometric 3 dimensional top view of the pivotal bag arm.

[0057] FIG. 22 is a trimetric 3 dimensional top front view of the sliding bag tray.

[0058] FIG. 23 is a trimetric 3 dimensional bottom view of the invention bag tray sliding track.

[0059] FIG. 24 is a trimetric 3 dimensional top front view of three alternate features, including a horizontal swinging case door, adjustable bag clips attached direct to the vacuum chamber front lip and control button housing in the front face.

[0060] FIG. 25 is schematic sight line study of the invention mounted under a kitchen cabinet.

[0061] For purposes of clarity and brevity, like elements and components will bear the same designations and numbering throughout the FIGURES. For purposes of brevity the 'suspended vacuum sealer appliance' will be referred to as 'appliance'.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0062] The following description, taken in conjunction with the drawings, sets forth the preferred embodiment of the present invention in such a manner that anyone ordinarily skilled in the art can make and use the invention. The embodiment of the invention disclosed herein is the best method envisioned by the inventor for use in a home, small shop or laboratory environment, although it should be understood that various modifications can be accomplished within the scope and spirit of the present invention.

[0063] The present invention is an improvement over prior art in that the appliance provides a means for placing it where it is ready for instant use, attached suspended under a shelf, cabinet or the like, provides a means for filling a vacuum storage bag suspended in a vertical position outside of the appliance and provides a means for securely holding the open end of a vacuum storage bag suspended in a vertical position in the vertical open face of a vacuum chamber, whereby the vacuum bag is ready to have ambient air extracted and thereafter sealed. The invention as hereinafter described can be constructed of plastic, metal and/or wood materials.

[0064] FIG. 1 is a trimetric view of the appliance 10, herein shown is a case housing 12, pivotally attached case door 110 in the open position, removable top lid 22, control buttons 60, vacuum chamber with a vertical open face, removable drip tray 82 with a vertical open face, adjustable bag clips 40, heat strip 62, pivotal bag arms 64 and slidable bag tray 74.

[0065] FIG. 2 is an exploded view illustrating the individual components in their relative positions for assembly. The case housing 12 consists of sides, back, bottom and a recessed front panel 18. The recess of the front panel 18 provides wing panels 26. Within the front panel 18 is housed the vacuum

chamber 28 with a front open face oriented vertical or near vertical, which can be permanently or removably attached thereto. Provided surrounding the perimeter of the vacuum chamber 28 is a gasket seal 32 which is removably attached. Shown on the left side of case housing 12 are control buttons 60 for controlling the functions for vacuuming and sealing. Housed within the case housing 12 are the vacuum source pump 54, circuit board 58 (not seen here), wiring (not shown) and tubing 56 for communication between the vacuum source 54 and the vacuum chamber 28.

[0066] The top lid 22 is removably attached to gibs 44 provide in the case housing 12, by fasteners (not shown). The removable drip tray 82 inserts into the vacuum chamber 28. The case door 110 is pivotally attached to the case housing wing panels 26, wherein the oblong axle pins 112 fit into the oblong filisters 42 provided in each wing panel 26. A bag tray 74 for storing flat vacuum bags is removably attached at the bottom the case housing 12. The bag tray 74 can be positioned within or/and on bottom or top of the case housing 12. Further provided are pivotal bag arms 64 attached to the appliance 10 for holding vacuum bags in a vertical position for filling. The pivotal bag arms 64 may be attached anywhere appropriate on/in the appliance 10.

[0067] FIGS. 3, 4 & 5 illustrates the sequences for attaching the appliance 10 to the bottom of a shelf, cabinet or the like. Provided is a mounting bracket 214 attached to the underside of the shelf 210, cabinet or the like. Provided in each side of the case housing 12 are horizontal grooves 46. These grooves align with the mounting bracket rails 216 and slides onto the bracket 214 as shown in FIG. 4. This mounting arrangement allows for convenient removal of the appliance 10 for portability.

[0068] FIG. 5 illustrates the appliance 10 installation completed with the case door 110 opened in a locked position. The bag tray 74 is shown extended which allows convenient placing and retrieval of vacuum bags 130. The dashed straight arrow line indicates the directions the bag tray slides.

[0069] FIG. 6 illustrates the appliance 10 being mounted to a wall 112. Provided at the rear of each side of the case housing 12 are vertical grooves 48. The bracket 214 is attached to a wall 212 and the appliance 10 is set in a similar sequence as mounting under a shelf.

[0070] FIG. 7, shows the process for filling a vacuum storage bag 130. The vacuum bag 130 is retrieved from the bag tray 74. The pivotal arms 64 are extended as indicated by an arc arrow line. The pivotal arms 64 are pivotally adjustable to fit various width vacuum bags 130. The vacuum bag 130 is placed on the pivotal arms 64 by spreading the vacuum bag's open end 132 and attaching each side thereof to the pivotal arm clips 66. An optional filler funnel 138 can be placed in the vacuum bag open end 132. The neck of the filler funnel 138 keeps the inside of the vacuum bag 130 free and clean of contaminates from the open end 132 to below where the vacuum bag 130 will be sealed after the extraction of ambient air.

[0071] As shown in FIG. 8, after the vacuum bag 130 is filled and removed from the pivotal bag arms 64, both to corners of the vacuum bag are gripped by the user's two hands and the open end 132 of the vacuum bag 130 is positioned in the vacuum chamber 28. With the thumbs of both hands pressing the bag 130 in and down at the side of the bag clips 40 where indicated by bold arrow lines, the bag 130 is pierced through both sides and is held securely with the open end 132 in the vacuum chamber 28.

[0072] Referring to FIG. 9, the case door 110 is closed and the sequence of vacuum extracting ambient air and sealing the vacuum bag 130 is commenced.

[0073] FIG. 10 is a sectional view of the appliance 10 taken along lines A-A in FIG. 8, illustrating the preferred embodiment in detail with the relation between the components. The case door 110 being pivotally attached to the case housing 12 rotates up approximately 135° from vertical. The oblong axle boss 112, shown in FIGS. 15 and 16, freely rotates in the oblong filister 42 provided in the wing panels 26, shown in FIG. 17. At an angle of approximately 135° up from vertical the axle boss 112 slips into slot 42a, whereby it is locked in the open position. This angle arrangement is critical, as shown by the sight line study in FIG. 25, thereby allowing the face of appliance 10 to be installed flush with the face of the cabinet above. Further provided, is a horizontal slot 42b, wherein the case door 110 can be completely removed from the case housing 12, as may be preferred under some conditions. The vacuum bag open end 132 is held vertically in the front open face of the drip tray 82 by means of the adjustable bag clips 40.

[0074] The vacuum chamber 28 consists of a top panel 92, a back panel 94, a bottom panel 96 and end closures 98. Provided in the top panel 92 is an orifice 52 for the connection of the vacuum tube 56 to the vacuum source 54. This position of the orifice 52 further deters liquids from the content 134 from entering the vacuum source 54.

[0075] FIG. 11 is a sectional view of the appliance 10 taken along lines B-B in FIG. 9, illustrating the preferred embodiment with the case door 110 in the closed position. The case door 110 is lifted up out of slots 42a into the oblong filister 42 and there rotated down to the closed position.

[0076] Further provided on the case door 110 is a gasket seal 114 (as shown in FIG. 15), which aligns with the gasket seal 32 surrounding the perimeter of the vacuum chamber 28. As a vacuum is generated by the vacuum source 54 within the vacuum chamber 28 the respective gasket seals compress together. Under this vacuum suction the oblong filister 42 allows the case door 110 in the closed position to move horizontally and parallel toward the front panel 18, as indicated by the straight arrow line in FIG. 11, thereby maintaining a uniform seal between the vacuum chamber gasket seal 32 and case door gasket seal 114, whereby the vacuum chamber is sealed from ambient air.

[0077] Inside the gasket seal 114 is a recessed void space 116 for receiving the end of the pin 39 of the bag clip 40 when the case door 110 is closed. Positioned below the gasket seal 114 is a longitudinally oriented rubber seal 118 which aligns with the heat strip 62 when the door is in the closed position. The rubber seal 118 compresses against the heat strip 62 when the door is sucked in by the vacuum source 54.

[0078] The removable drip tray 82 inserts into the front open face 29 of vacuum chamber 28. The drip tray 82 with a vertically oriented front open face has a lip flange 83 at the bottom front edge, whereby dripping liquids from the packaged contents 134 are trapped. Provided on the front lip flange 83 of the drip tray 82 is a track 84 for attaching the adjustable and/or removable bag clips 40. The track 84 may be omitted and a bag clip pin 39 can be mounted fixed to the front lip flange 83 of the drip tray 82. In the face of front lip 83 are provided numerals 86 that identify different positions for placing the adjustable bag clips 40 or 40a to correspond with various width vacuum bags 130. In the top back corner of the drip tray 82 are a series of perforations 90 which allow ambi-

ent air 136 to exhaust through the drip tray 82 into the vacuum chamber 28 (see FIG. 19). Further, provided at the center in the drip tray track 84 is a notch 88 for the insertion and removal of the bag clip 40 (see FIG. 18a).

[0079] Below the vacuum chamber 28 is a heat strip wire 62. The heat strip wire 62 is controlled by the circuit board 58 to seal the vacuum bag 130 after the ambient air 136 has been evacuated from the bag 130, and while a vacuum is still present within the vacuum chamber 28. When the heat strip is activated it seals the vacuum bag 130 where it is compressed between the heat strip 62 and the rubber seal 118.

[0080] Referring to FIG. 12 and FIG. 13, these section drawings illustrate alternate 1 of the adjustable bag clip 40 assembly. The track 84 is replaced with an alternate track 84a positioned in the front panel 18 below the vacuum chamber 28 and above the heat strip wire 62. A notched space (not shown) is provided in the track 84a for the insertion and removal of the adjustable and/or removable bag clip 40. Adjustable bag clip 40a may also be substituted for bag clip 40 with a revision of the track 84a. Further, the pin 39 can be a stand alone bag clip to be fixed in a position below the vacuum chamber 28 and above the heat strip 62 on the front panel 18 without a track 84a, similar to the fixed pin 39 on the drip tray 82 as shown in FIG. 18b. The void space 116 is located below the case door gasket seal 114 to receive the end of the pin 39 when the case door 110 is closed.

[0081] FIG. 14 illustrates other alternates 2 and 3. Alternate 2 shows the bag clip 40 adjustable and/or removable on a front lip flange 99 of the vacuum chamber 28. This arrangement eliminates the use of drip tray 82. Numerals 86 can be provided on the front lip flange 99 or the front panel 18 to indicate where the bag clips 40 can be positioned for various width vacuum bags 130.

[0082] Alternate 3 illustrates the bag clip pin 39 in a fixed position on a front lip flange 99. This arrangement eliminates the use of drip tray 82 and limits the use of some widths of vacuum bag 130.

[0083] FIG. 16 is a close up view showing the axle boss 112. The flat sides for the axle boss 112 allow the case door 110 to be removable from the filister 42 (FIG. 17) by sliding out of the slot 42b in a horizontal position. When the case door 110 is rotated up to the angle of the slot 42a the case door 110 slips into the slot 42a and the case door 110 is locked in that position.

[0084] FIG. 18a is a stand along isometric illustration of the preferred drip tray 82 clearly showing the adjustable bag clips 40 and the numerals 86 on the face of the front lip flange 83. The notch 88 is shown in the center of the track 84 however it is optional to where the notch 88 is positioned.

[0085] FIG. 18b illustrates the drip tray 82 with the bag clips pins 39 fixed on the front lip flange 83. With this arrangement additional drip trays 82 can be furnished with the different spacing to accommodate different width vacuum bags 130.

[0086] FIG. 18c is an isometric back view of the drip tray 82 showing perforations 90 in the top back corner thereof, whereby communication is achieved from the drip tray 82 with the vacuum source 54 through the vacuum chamber 28.

[0087] FIG. 19 is an isometric front view of the adjustable bag clip 40. The preferred material of this bag clip is high impact thermo plastic with the point of the pin only pointed sufficiently to pierce the vacuum bag 130 and thereby not being hazardous to the user. The adjustable bag clip 40 comprises a pin 39 integral with or fixed to a bag clip base 41.

[0088] FIG. 20 is an isometric front view of the adjustable bag clip 40a. This adjustable bag clip 40a fits directly to a front lip flange 99 provided at the bottom of the vacuum chamber 28 or to the front lip flange 83 on the drip tray 82. The adjustable bag clip 40a comprises the pin 39 integral with or fixed to a bag clip base 41a.

[0089] FIG. 21 illustrates the pivotal arm 64 assembly that is attached to the appliance 10. The clip pin 66 would preferably be of the same high impact thermo plastic with the point of the pin only pointed sufficiently to pierce the vacuum bag 130. The pin clip 66 is fixed to the end of bag arm 64. The axle pin 72 is pivotal within the bag arm 64 or the case housing 12. Attachment of the pivotal arm axle 72 to the case housing 12 can be by any reasonable means. Provided is a friction washer 68 between the case housing 12 and the pivotal arm 64 to hold the arm 64 where positioned from loosely swinging. The bag arm 62 may attached either on or in said case housing 12.

[0090] FIG. 22 is a trimetric front view of the sliding bag tray 74. At each side of the bag tray 74 are ribs 75. The ribs 75 interact with the fixed tray rails 73 (shown in FIG. 23) which are fixed to each side at the bottom of the case housing 12 allowing the bag tray 74 to freely slid. At the back of the tray rails 73 are stops (not shown) which stop the tray at a pre-determined position when closed. The bag tray 74 can optionally be positioned at the top the case housing 12 and/or within the case housing 12.

[0091] FIG. 24 is presented to show three alternate options:

[0092] 1) The case door 110 is hinged at one side wing 26 to pivot horizontally. The holes 50 which receive the axle boss 112 are elongated to allow the case door 110 to move parallel and horizontally in and toward the front panel 18.

[0093] 2) The bag clips 40b are attached adjustable and/or removable on the lip 99 provided at the front bottom edge of the vacuum chamber 28, without the drip tray 82. The bag clips may be removable and locatable by a means of snapping on to the front lip flange 99. This same snapping arrangement is possible on the front lip flange 83 on the drip tray 82. Further, the pin 39 can be fixed to the front lip flange 99 of the vacuum chamber 28.

[0094] 3) Provided is a control button housing 27 at one side wing 26, wherein the control buttons are in the front of the appliance 10 rather than on the side as shown in FIG. 1.

[0095] FIG. 25 is a sight line study to show that a vertically hinged case door 110 must be rotated up from the closed vertical position approximately 135° otherwise the view of the vacuum chamber 28 may not be visible to the user when attaching the vacuum bag 130 to the bag clips 40.

[0096] Having thus described the invention, what is desired to be protected by Letters Patent is presented in the subsequently appended claims.

1. A vacuum sealer appliance for extracting ambient air from a vacuum storage bag, thereafter sealing said vacuum storage bag, wherein said vacuum sealing appliance is attached suspended under a shelf, cabinet or the like, comprising:

- (a) a case housing, wherein provided on a front panel of said case housing is a vacuum chamber with a gasket seal surrounding the perimeter of said vacuum chamber, wherein said vacuum chamber has a vertical open face.
- (b) a heat strip wire provided below said vacuum chamber on said front panel of said case housing;

- (c) a case door, pivotally attached to said case housing, wherein provided is a gasket seal which aligns with said vacuum chamber gasket seal when said case door is closed, whereby said vacuum chamber is sealed from ambient air; and

- (d) at least one adjustable bag clip means for securely holding the open end of said vacuum bag vertically within said vertical open face of said vacuum chamber with the said case door open.

2. A vacuum sealer appliance for extracting ambient air from a vacuum storage bag, thereafter sealing said vacuum storage bag, wherein said vacuum sealing appliance is attached suspended under a shelf, cabinet or the like, comprising:

- a) a case housing, wherein provided on a front panel of said case housing is a vacuum chamber with a gasket seal surrounding the perimeter of said vacuum chamber, wherein said vacuum chamber has a vertical open face.

- (b) a heat strip wire provided below said vacuum chamber on said front panel of said case housing;

- (c) a case door, pivotally attached to said case housing, wherein provided is a gasket seal which aligns with said vacuum chamber gasket seal when said case door is closed, whereby said vacuum chamber is sealed from ambient air; and

- (d) at least one pivotal bag arm provided and attached to said vacuum sealer appliance for holding said vacuum bag for filling with items.

3. A vacuum sealer appliance for extracting ambient air from a vacuum storage bag, thereafter sealing said vacuum storage bag, wherein said vacuum sealing appliance is attached suspended under a shelf, cabinet or the like, comprising:

- a) a case housing, wherein provided on a front panel of said case housing is a vacuum chamber with a gasket seal surrounding the perimeter of said vacuum chamber, wherein said vacuum chamber has a vertical open face.

- (b) a heat strip wire provided below said vacuum chamber on said front panel of said case housing;

- (c) a case door, pivotally attached to said case housing, wherein provided is a gasket seal which aligns with said vacuum chamber gasket seal when said case door is closed, whereby said vacuum chamber is sealed from ambient air; and

- (e) a bag tray for storing flat said vacuum bag within said suspended vacuum sealer appliance.

4. The vacuum sealing appliance as recited in claim 1, wherein said bag clip means for securely holding the open end of said vacuum bag within said vertical open face of said vacuum chamber is a drip tray with a vertical open face, inserted within said vacuum chamber, with at least one said adjustable bag clip attached to said drip tray.

5-14. (canceled)

15. The vacuum sealing appliance as recited in claim 1, wherein said bag clip means for securely holding vertically the open end of said vacuum bag within said vertical open face of said vacuum chamber is at least one fixed said bag clip.

16. The vacuum sealing appliance as recited in claim 1, wherein said bag clip means for securely holding vertically the open end of said vacuum bag within said vertical open face of said vacuum chamber is at least one removable said bag clip.

17. The vacuum sealing appliance as recited in claim 4, wherein said bag clip means for securely holding the open end

of said vacuum bag within said vertical open face of said vacuum chamber is said drip tray with a vertical open face, inserted within said vacuum chamber, with at least one fixed said bag clip attached to said drip tray.

18. The vacuum sealing appliance as recited in claim **4**, wherein said bag clip means for securely holding the open end

of said vacuum bag within said vertical open face of said vacuum chamber is said drip tray with a vertical open face, inserted within said vacuum chamber, with at least one removable said bag clip attached to said drip tray.

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