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(19) **United States**(12) **Patent Application Publication**
Gulczynski(10) **Pub. No.: US 2005/0247029 A1**(43) **Pub. Date: Nov. 10, 2005**(54) **CONVEYOR BELT TRAY CLOSING APPARATUS**(75) Inventor: **Paul Gulczynski, Randolph, MA (US)**

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FORT LAUDERDALE, FL 33301 (US)(73) Assignee: **Air-Draulic Engineering Co., Inc.**(21) Appl. No.: **10/838,796**(22) Filed: **May 4, 2004****Publication Classification**(51) **Int. Cl.⁷ B65B 51/10**(52) **U.S. Cl. 53/377.6**(57) **ABSTRACT**

An apparatus and method for automatically closing and sealing the lids of hinged containers as the containers travel along a conveyor belt from an initial position to a final

position along a substantially horizontal surface. The apparatus includes a series of rail assemblies positioned above the horizontal surface. An elongated lid-closing rail assembly affixed to the horizontal surface includes a first section adapted to project beneath the containers as the containers move from the initial position to the final position thereby raising the lids of the containers, and a second, arcuate section, the second section extending toward the back edge of the horizontal surface thereby lowering the lids of the containers upon their respective base sections as the containers move from the initial position to the final position. The apparatus may also include a base section-alignment rail assembly for maintaining the base section of the container upon the horizontal surface while the lids of the containers are raised, and a lid-lowering rail assembly adapted to lower upon the lids of the containers after the lids have been lowered upon their respective base sections by the second section of the lid-closing rail. A tray-closing assembly utilizing revolving belts snaps the lid upon its base. Elongated front and rear edge rail guides prevent the base sections of the moving containers from extending beyond the edges of the horizontal surface. A filling station can be positioned between the initial and final positions to fill the containers with various content before the containers are closed.

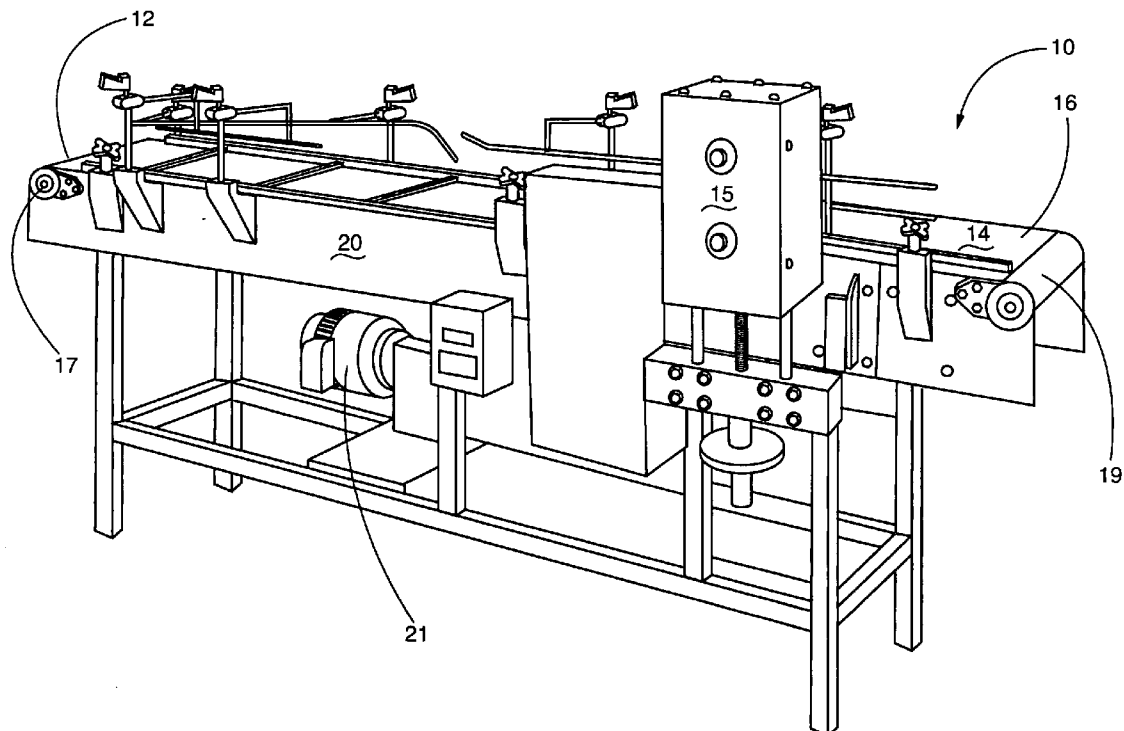


FIG. 1

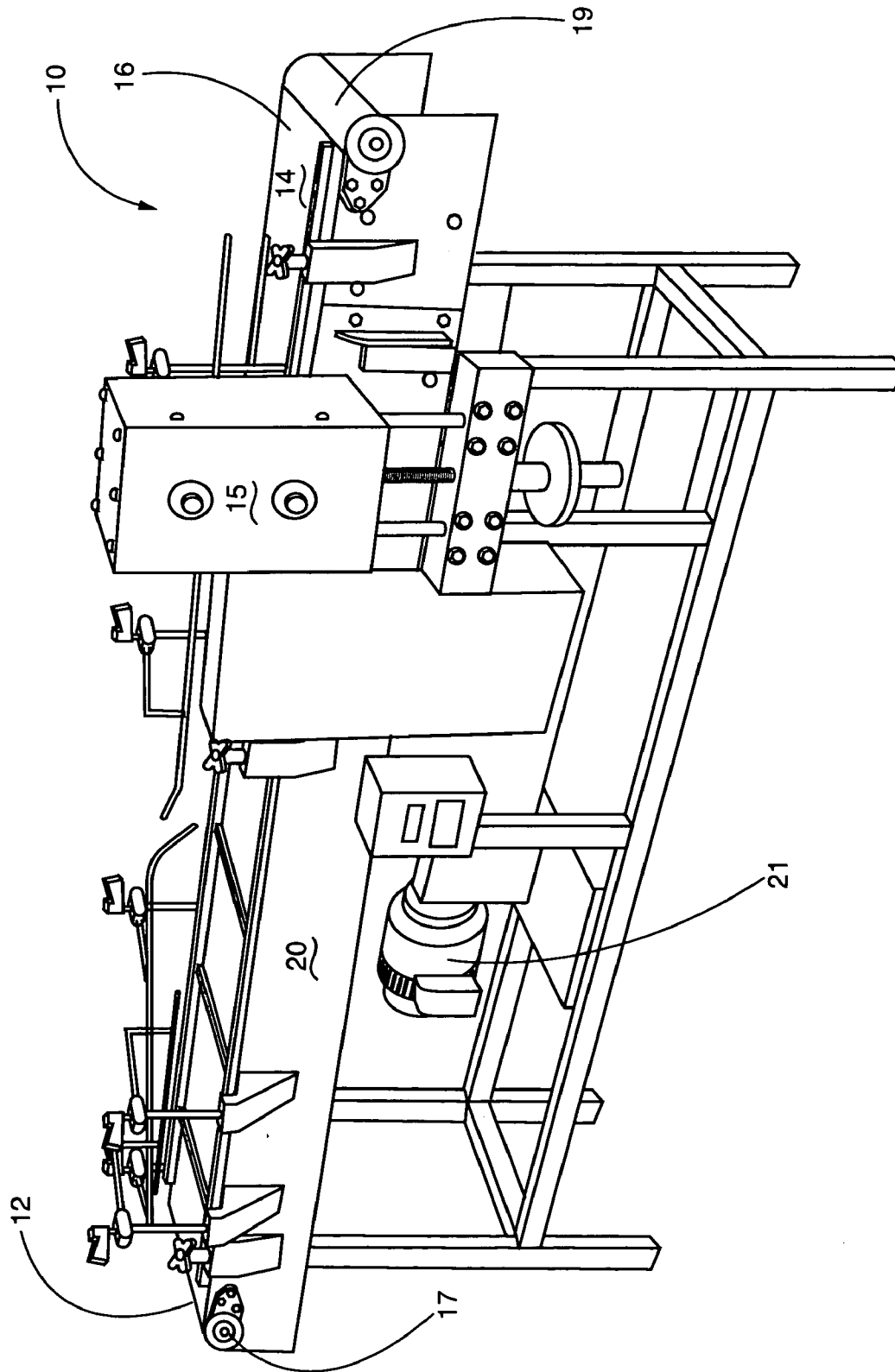


FIG.2A

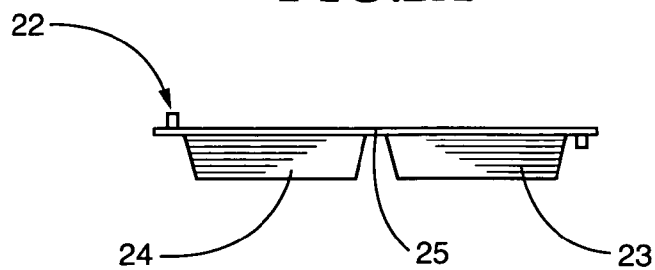


FIG.2B

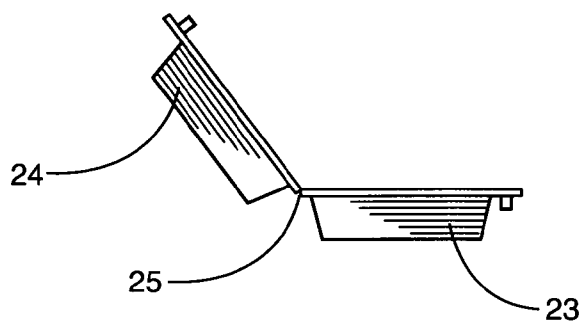


FIG.2C

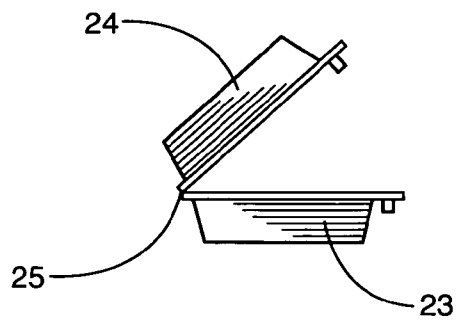


FIG.2D

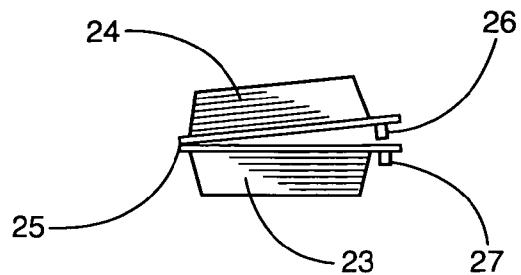


FIG. 3

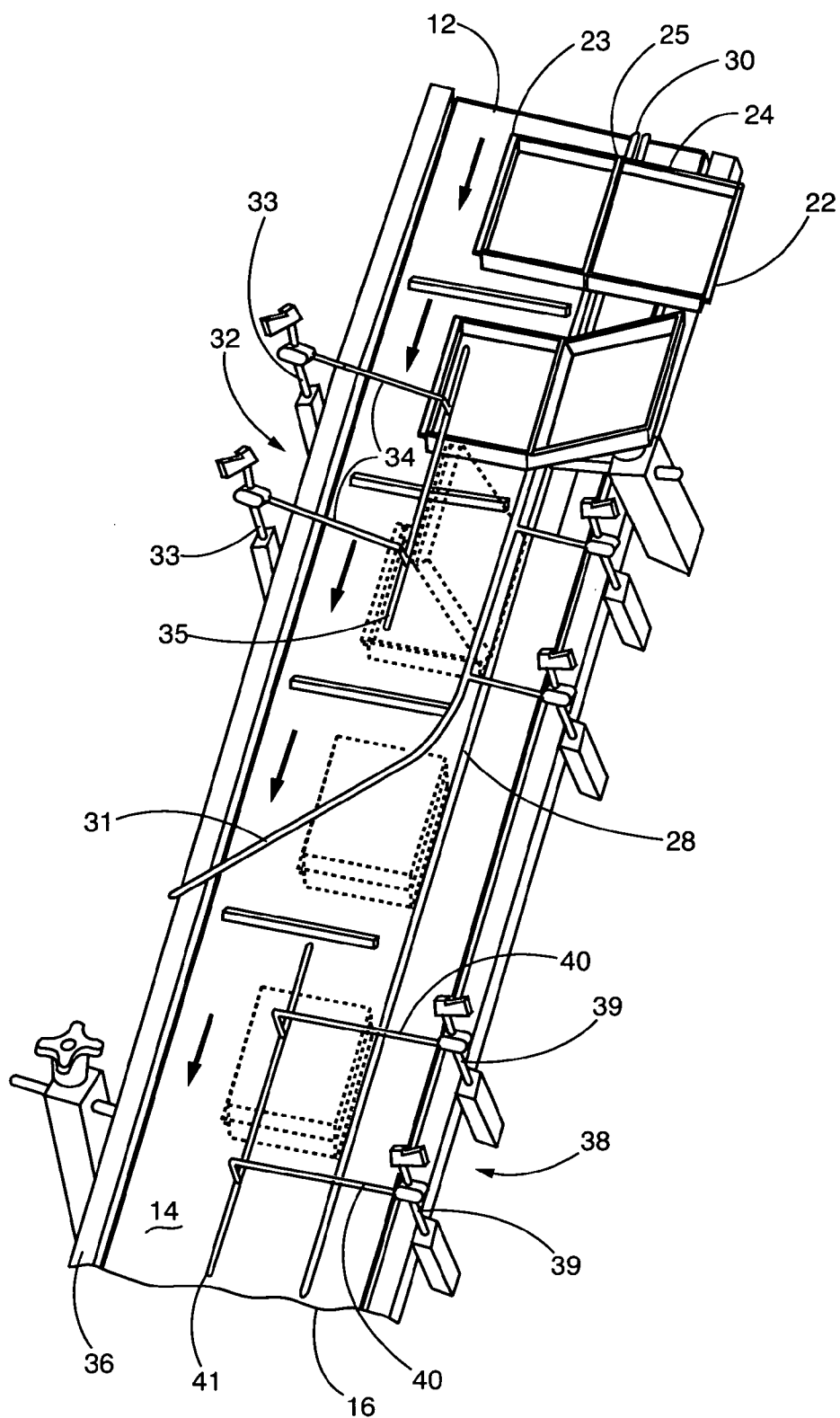


FIG. 4

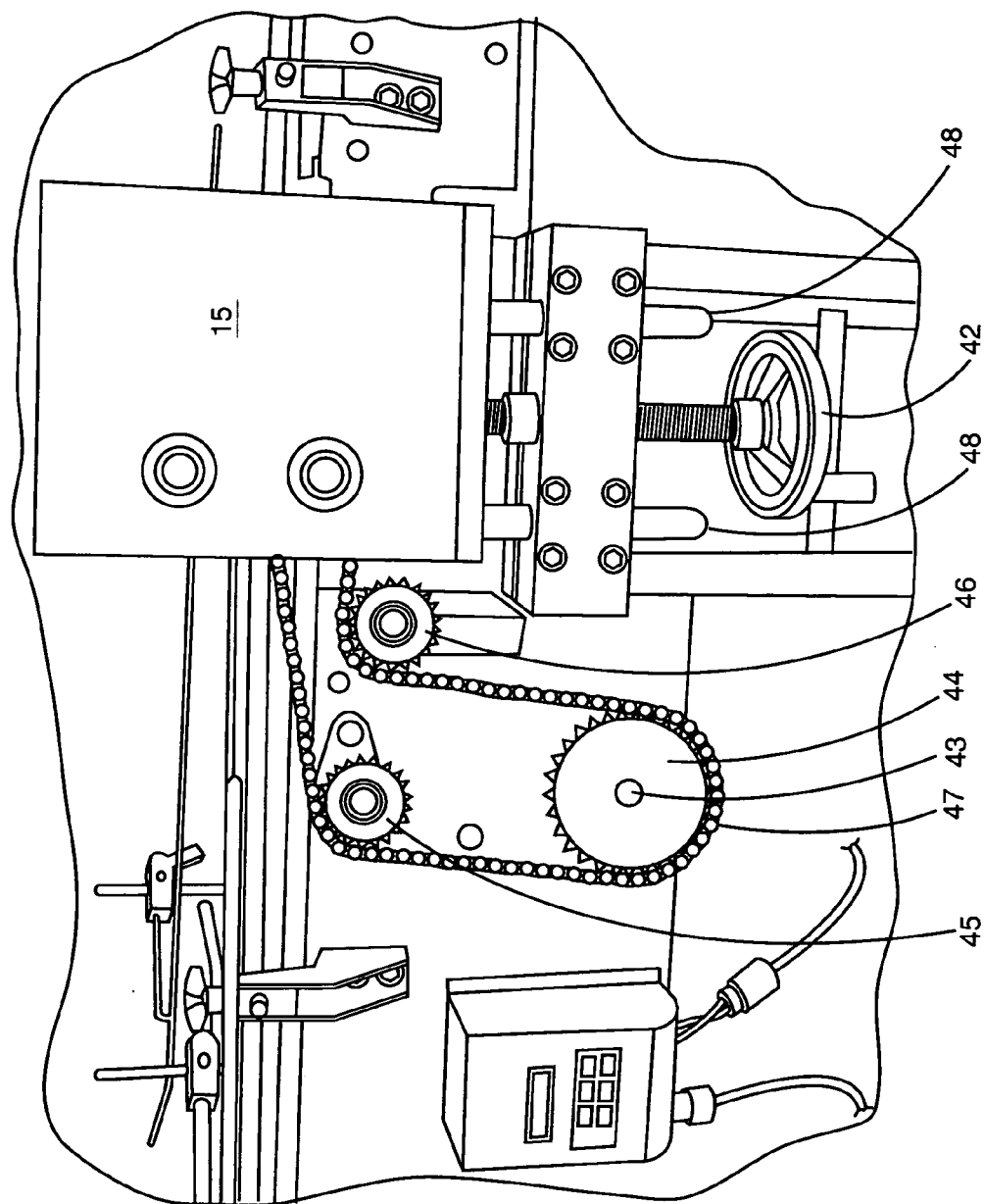


FIG. 5

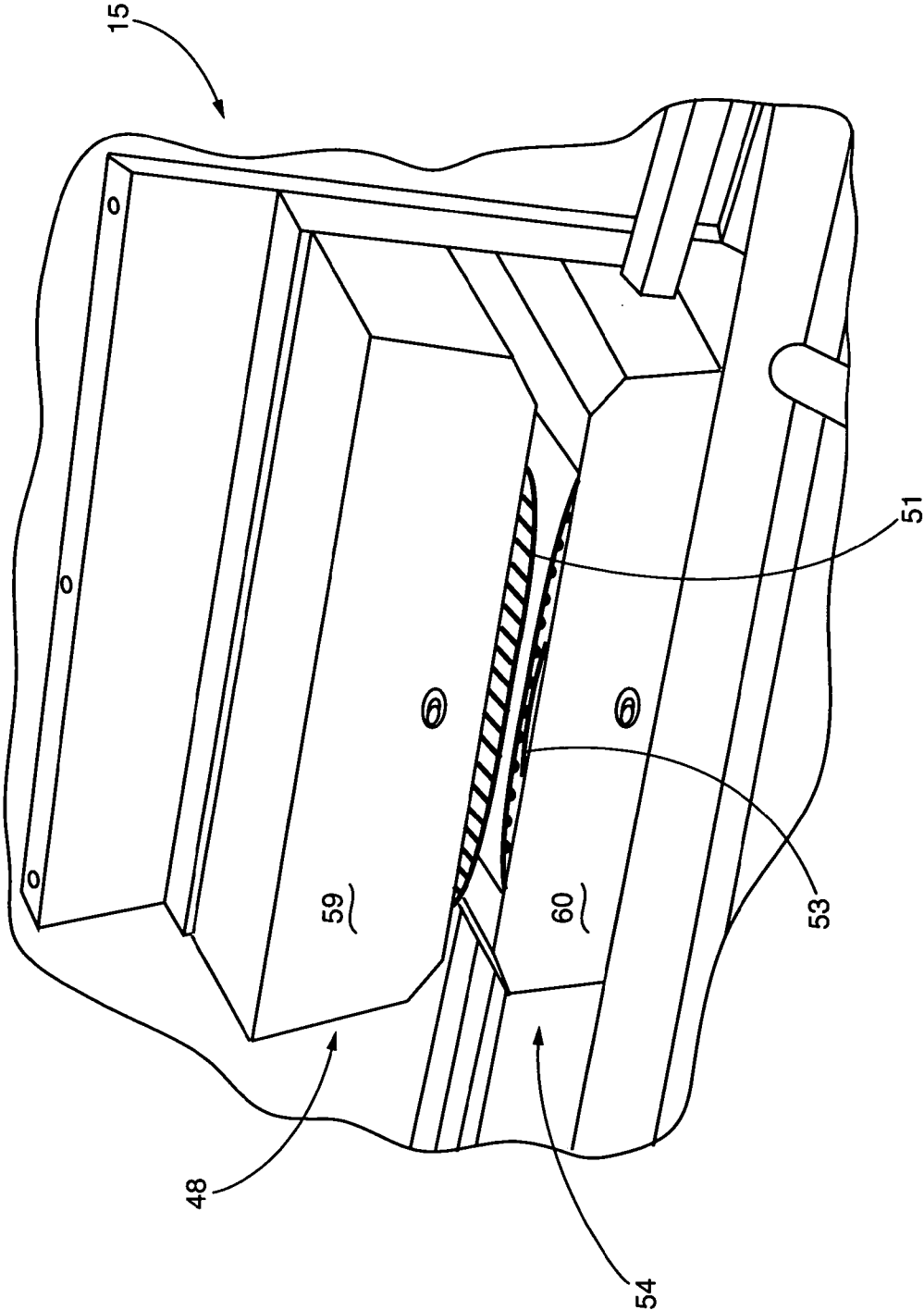
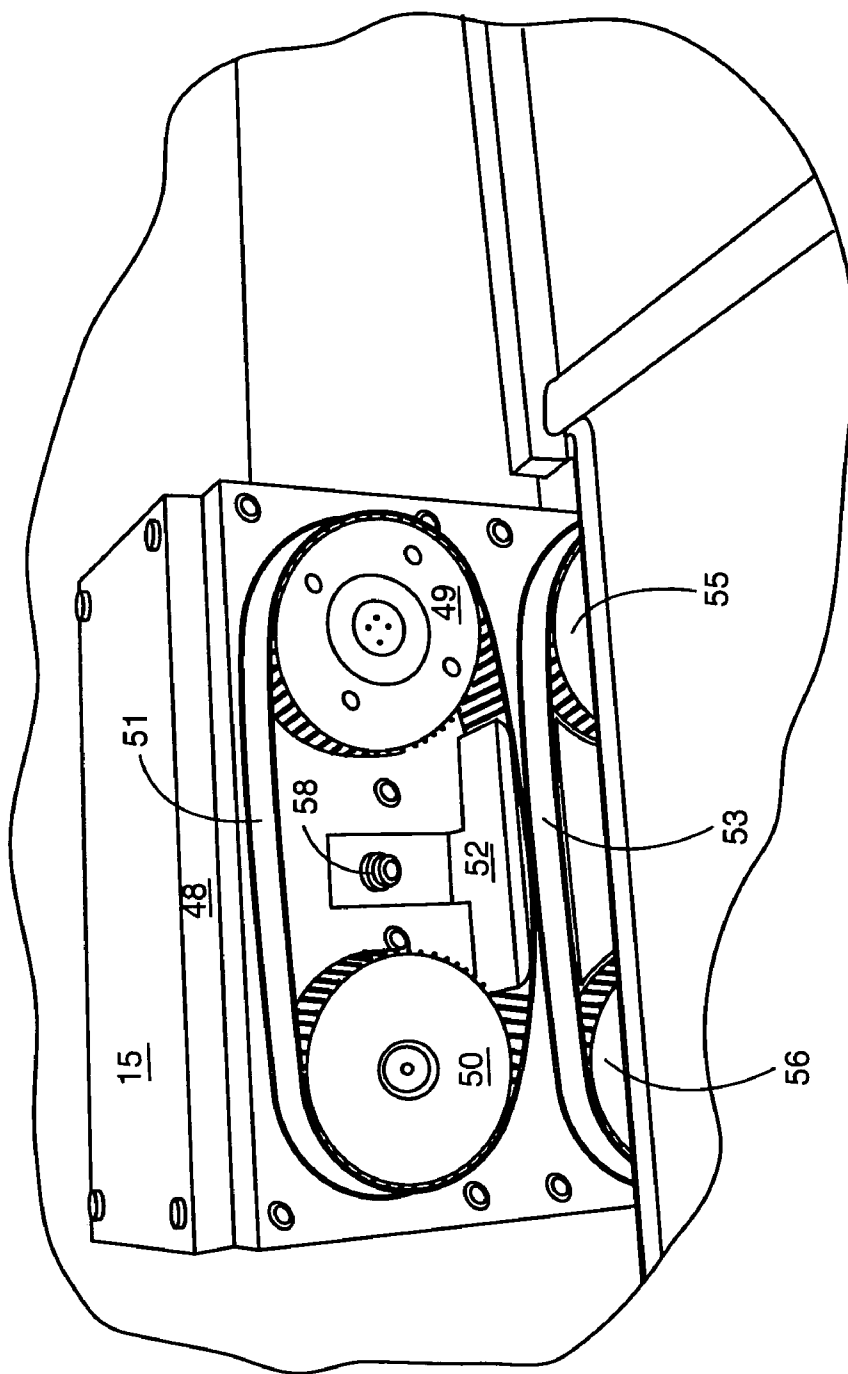


FIG. 6



CONVEYOR BELT TRAY CLOSING APPARATUS**CROSS-REFERENCE TO RELATED APPLICATION**

[0001] n/a

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] n/a

FIELD OF THE INVENTION

[0003] The present invention relates to a system for closing containers and more specifically to an automated system that efficiently and inexpensively closes and seals a plurality of clamshell containers traveling along a conveyor belt.

BACKGROUND OF THE INVENTION

[0004] Conveyor belt systems are common in the art. Conveyor belts are often used to transport items from a starting point to a final destination. Conveyor belt systems have been used in the past in the packaging industry particularly when hundreds of packages need to be filled with items such as produce, muffins, croissants, and desserts. Plastic trays, often known as "clamshell packages" because of their similarity to the shape of a clamshell, often house produce and include a snap that seals the food or produce within the base portion and lid portion of the clamshell package. A typical conveyor belt system may have a mechanism to fill the clamshell package and then close the lid and seal the contents therein to obviate the need for the tray to be filled and sealed by hand. Clearly, it is critical to provide a conveyor belt system that fills and seals a constant flow of trays in an efficient and inexpensive manner. Many prior art packaging systems require constant human intervention. Others systems that utilize conveyor belts comprise many components, thereby increasing the chance that a component will malfunction.

[0005] Certain prior art includes conveyor belt systems require the tray to be oriented in a first position as it begins to travel down the conveyor belt, and then be shifted to a different orientation as it travels further down the belt. Needless to say, this type of system requires additional components to adjust the trays, resulting in potentially more malfunctions, a higher cost and additional man-hours in order to maintain the system.

[0006] Other systems include components that can accommodate only certain sized-trays. These systems utilize tray-closing components that cannot be adjusted to accommodate trays of different sizes. These systems are therefore completely ineffective when trays of different sizes need to be filled.

[0007] It is, therefore, desirable to provide a conveyor belt packaging system that automates the filling, closing, and sealing of clamshell tray containers, while minimizing the number and complexity of components.

[0008] It is also desirable to provide a conveyor belt packaging system that requires no human intervention and includes components that may be easily adjusted to accommodate different sized-trays.

SUMMARY OF THE INVENTION

[0009] The present invention advantageously provides a system and method for automatically closing and sealing clamshell containers as they move along a conveyor belt. The system and method includes a series of alignment rail assemblies that serve to both align the containers as they move along the conveyor belt and to automatically raise the lids of the containers, and, after the containers have been filled, lower and seal the lids upon their respective base sections.

[0010] In one aspect of the present invention, a conveyor belt apparatus for closing hinged containers is presented. The hinged containers include a base section hingedly coupled to a lid. The base section includes a sealing receptacle and the lid includes a sealing flange that is insertable within the sealing receptacle. The conveyor belt apparatus includes a substantially horizontal support stand having a front edge, a back edge, a tray-receiving end and a tray-discharge end. The apparatus further includes conveyor means disposed upon the support stand and adapted to move one or more containers from an initial position on the support stand to a final position on the support stand. An adjustable rail guide assembly is included for aligning the one or more containers and for automatically lowering the lid upon the base section of the one or more containers as the one or more containers move from the initial position to the final position. Finally, a tray-sealing assembly is adapted to seal the lid of the hinged containers to the base section.

[0011] In yet another aspect, the present invention provides a tray-sealing assembly for closing hinged containers, where the hinged containers include a base section hingedly coupled to a lid. The base section includes a sealing receptacle and the lid includes a sealing flange insertable within the sealing receptacle. The tray-sealing assembly includes a vertically-adjustable sub-assembly affixed to the substantially horizontal support stand. The sub-assembly includes upper and lower belts rotatable about an axis substantially perpendicular to the horizontal axis of the support stand. The upper and lower belts are separable by a gap, whereby the gap and rotating belts are adapted to compress the sealing flange into the sealing receptacle as the one or more containers move from the initial position to the final position thereby sealing the lid of the container to its base section.

[0012] In yet another aspect, a method of automatically closing hinged containers is presented. The hinged containers include a base section hingedly coupled to a lid. The method includes positioning one or more hinged containers on a substantially horizontal surface, and moving the one or more hinged containers from an initial position to a final position along the substantially horizontal surface. The method further includes providing one or more rail assemblies along the substantially horizontal surface, where the rail assemblies are adapted to automatically lower the lids on the base sections of the one or more containers as the one or more containers move from the initial position to the final position. Finally, the method provides a tray-sealing assembly adapted to seal the lid of the hinged containers to the base section.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] A more complete understanding of the present invention, and the attendant advantages and features thereof,

will be more readily understood by reference to the following detailed description when considered in conjunction with the accompanying drawings wherein:

[0014] **FIG. 1** is a perspective view of the conveyor belt tray closing apparatus of the present invention;

[0015] **FIGS. 2A-2D** are side views of a typical “clamshell” tray used in association with the present invention;

[0016] **FIG. 3** is top, perspective view of the conveyor belt tray closing apparatus of the present invention illustrating the rail guide system and a clamshell tray in various stages along the conveyor belt;

[0017] **FIG. 4** is a rear view of the vertically-adjustable tray-closing assembly of the present invention;

[0018] **FIG. 5** is a perspective view showing the upper and lower portions of the tray-closing assembly of the present invention; and

[0019] **FIG. 6** is a cut-away perspective view showing the internal workings of the vertically-adjustable tray-closing assembly including the upper and lower timing belts and the belt adjustment guide controlling the tension of the upper timing belt.

DETAILED DESCRIPTION OF THE INVENTION

[0020] The present invention is a system and method for closing and sealing clamshell tray containers as they travel along a conveyor belt. The system of the present invention advantageously provides an automated conveyor belt apparatus that utilizes a series of adjustable and strategically oriented rails in order to guide the flow of containers along the conveyor belt, where they can be filled, closed and sealed in an efficient manner and without user-intervention. The sub-assembly that seals the containers is a vertically-adjustable assembly that utilizes a pair of timing belts forming a gap through which the container passes. The movement of the timing belts compresses and seals the lids of the containers upon their respective base sections.

[0021] Referring now to the drawing figures in which like reference designations refer to like elements, **FIG. 1** shows a perspective view of the conveyor belt tray closing apparatus of the present invention. The conveyor belt apparatus includes a conveyor apparatus **10** that moves one or more trays along a conveyor belt **14** in a substantially horizontal path. Apparatus **10** also includes an alignment assembly comprised of a series of rails designed to both align the containers as they travel along the conveyor belt **14** and to automatically close the container lids. As each container travels along conveyor belt **14**, it is filled with content via methods commonly known in the art. A tray-closing assembly **15** (shown in **FIGS. 4-6** and discussed in greater detail below) seals the container lids on their respective base sections.

[0022] Containers (not shown in **FIG. 1**) are loaded on assembly **10** at an in-feed section **12** and travel towards a tray discharge section **16** of apparatus **10**. Apparatus **10** may have either a left-to-right configuration, where trays travel along belt **14** from left to right, or a right-to-left configuration where trays travel along belt **14** from right to left, thereby allowing for trays to flow in either direction. The direction of flow depends upon the arrangement of the rail

system, which will be discussed below. The apparatus **10** shown in **FIG. 1** illustrates a left-to-right configuration. Apparatus **10** includes a substantially horizontal support stand **20** covered by conveyor belt **14**. A motor assembly **21** controls the rotation of two rollers, a front roller **17** affixed to the front of stand **20** and a rear roller **19** affixed to the rear of stand **20**.

[0023] Belt **14** is wrapped around rollers **17** and **19** and, upon activation of motor assembly **21**, belt **14** moves in one direction, in this case from left-to-right, and moves containers in this direction from in-feed section **12** toward tray-discharge station **16**. One or more containers are placed on belt **14** at in-feed section **12** either by hand or placed on belt **14** via an automated feeding system commonly known in the art. A filling station of a design that is commonly known in the art may be inserted along apparatus **10** when the containers are in their initial, open configuration, to allow the base sections of the containers to be filled with various content. Tray-discharge station **16** may include a downward-sloping portion (not shown) to allow the containers **22**, once filled, closed and sealed, to be lowered into a discharge area.

[0024] Apparatus **10** is designed to automatically seal containers having a base portion with a hinge coupling the base section to a lid portion. A typical tray of this configuration is called a “clamshell” container. Trays of this type typically contain various types of content such as small fruits, vegetables, or other produce or consumable items, and are commonly seen at salad bars, food markets or grocery stores. A typical clamshell tray container **22** is shown in **FIG. 2A**. Base section **23** is coupled to lid **24** via a hinge **25** in a manner commonly known in the art. Container **22** may be opened by raising lid **24** and swinging it back via hinge **25** until the space between lid **24** and base section **23** allow for content to be inserted. Preferably, it is in this open configuration that the trays are loaded onto belt **14** at the in-feed section **12**.

[0025] Conversely, application of pressure upward upon lid **24** raises the lid from its substantially horizontal configuration as shown in **FIG. 2B**. Further application of pressure in addition to the force of gravity allows lid **24** to be closed upon base section **23** as shown in **FIGS. 2C and 2D**. Upon the application of sufficient pressure, sealing flange **26** projecting from lid **24** is inserted within sealing receptacle **27** in base section **23** thus allowing lid **24** to be snapped shut against base section **23**. This seals the contents within container **22**. Tray-sealing assembly **15** (discussed in greater detail below) automates the sealing function.

[0026] Apparatus **10** provides a system that feeds open containers **22** along a conveyor belt **14** and then closes and seals the trays, all without user intervention. Referring now to **FIG. 3**, the rail guide assembly of the present will now be described. It should be noted that conveyor apparatus **10** includes a series of strategically aligned rail guides to raise and close the lid of each container **22** as it passes along belt **14**. Tray-closing assembly **15** seals the containers. As described above, a filling station commonly known in the art may be inserted at a point substantially near the in-feed section **12** in order to fill containers **22** with content prior to the beginning of the lid-closing process.

[0027] The apparatus shown in **FIG. 3** is a top, perspective view showing a clamshell container **22** traveling from the in-feed section **12** of belt **14** along belt **14** toward tray-

discharge section 16, in the direction of the arrows. It should be noted that tray-closing assembly 15 is not shown in FIG. 3. FIG. 3 illustrates the progression of only one container 22 as it travels along conveyor belt 14. Apparatus 10 is adapted to allow multiple trays to travel continuously along belt 14 from in-feed section 12 to tray-discharge section 14, one behind the other, as motor assembly 21 moves belt 14 around rollers 17 and 19. Thus, containers 22 travel along a "moving" substantially horizontal surface where content is loaded into the tray's base section, and the tray lids closed and sealed.

[0028] Containers 22 are loaded onto the in-feed section 12 of belt 14. Initially, at in-feed section 12, lid 24 of each container 22 is completely or partially opened and rests alongside base section 23 on belt 14 in the manner shown in FIG. 3. Apparatus 10 includes a series of rail guides, that serve to both align the containers 22 as they travel down belt 14 (i.e. alignment rail assembly), and to close the lids 24 of containers 22 upon base sections 23, after containers 22 have been filled with content (i.e. a tray-closing rail assembly).

[0029] The alignment rail assembly includes a front guide rail 28 that keeps the front edge of each container base section 23 properly aligned while preventing base section 23 from extending over the front edge of conveyor belt 14. Front guide rail 28 extends along the substantial length of belt 14. Front rail guide 28, as well as the other rail guides that comprise the alignment rail assembly of apparatus 10 may be comprised of metal or any equivalent component that provides sufficient resistance against container 22 in order to prevent base section 23 from extending over the edge of belt 14. As will be seen below, the alignment rail assembly maintains containers 22 in a proper orientation as they travel along belt 14.

[0030] As containers 22 begin moving (from top, right, to bottom, left, in FIG. 3) along belt 14, the front edge (i.e. the edge proximate hinge 25 of container 22) of each tray's base section 23 is kept in alignment by front rail guide 28. At in-feed station 12, containers 22 pass over lift rail 30. Lift rail 30 is part of the tray-closing rail assembly and serves to first raise, and then lower the lid 24 of each container 22 upon its base section 23. Lift rail 30 is an elongated rail that begins near in-feed section 12 of apparatus 10 and extends above and past the substantial mid-point of belt 14 while bending toward the back edge of belt 14. Lift rail 30 operates to raise the lid 24 of container 22 as container 22 moves along belt 14. Proximate in-feed station 12, each container 22 travels over lift rail 30, with lift rail 30 projecting under hinge 25. Lift rail 30 is positioned above belt 14 but, initially, low enough so that it projects below the lid of container 22.

[0031] Lift rail 30 gradually increases in height towards its curved portion 31. This increase in height serves to raise lid 24 from a substantially horizontal position upon belt 14 to a substantially vertical position, with respect to belt 14, as the tray moves along the conveyor belt. In addition to lift rail 30 increasing in height, it also curves over the center of belt 14 and toward the back edge of belt 14 as shown in FIG. 3. This assists in closing lid 24 upon base section 23. The increase in height and angle of lift rail 30 serves to force lid 24 to be raised from a first, substantially horizontal position to a second, substantially vertical position and then forward again to rest upon base section 23. A filling station (not

shown) may be inserted anytime prior to the closing of lid 24 upon base 23, yet preferably before tray lid 24 is beginning to close upon base section 23. Container 22 may be filled with produce or the like when lid 24 is in an open position. After container 22 is filled, lift rail assembly 30 closes lid 24 upon base 23 as described above, thus enclosing the content within container 22.

[0032] During the tray-closing process described above, a base-alignment rail assembly 32 holds the base 23 of container 22 down upon belt 14. Base-alignment rail assembly 32 is one of the rail assemblies that comprise the tray-closing rail assembly of the present invention. Rail assembly 32 thereby prevents base 23 of container 22 from lifting upward during the container-closing process. Rail assembly 32 maintains base section 23 in a relatively flat orientation upon belt 14 as lift rail 30 raises lid 24 to a substantially vertical orientation. Base-alignment rail assembly 32 is comprised of two substantially vertical members 33 extending upward from the front edge of stand 20. Two substantially horizontal members 34 extend from each vertical member 33 partially out over belt 14 where they then project downward toward belt 14. An elongated joining member 35 substantially parallel to the longitudinal axis of belt 14 joins to the two downward-projecting members. Joining member 35 is positioned high enough above belt 14 to allow the passage of base section 23 of container 22 underneath it, yet close enough to belt 14 to apply pressure upon base section 23 in order to maintain the base section in a properly aligned position as lid 24 is being raised.

[0033] During the tray-closing process, a rear rail guide 36 aligns the tray against the front of belt 14 by preventing the back edge of base section 23 from extending beyond the elongated rear edge of stand 20. Rear rail guide 36, along with front rail guide 28, form the alignment rail assembly of apparatus 10, and serve to maintain the containers 22 within the confines of belt 14 in order to provide an aligned, steady flow of containers 22. Rear rail guide 36, like front rail guide 28, runs the substantial length of belt 14. After lift rail 30 closes lid 24 of container 22, press rail assembly 38 provides downward pressure upon lid 24 of container 22 against base section 23 as the container travels toward the tray discharge section 16 of belt 14.

[0034] Press rail assembly 38, along with lift rail 30 and base-alignment rail assembly 32, comprise the tray-closing rail assembly of the present invention. Press rail assembly 38 is comprised of vertical members 39, horizontal member 40, and joining member 41. Therefore, as containers 22 approach press rail assembly 38, the lids 24 of containers 22 have already swung forward on their respective base sections 23. Joining member 41 of press rail assembly 38 serves to press upon the lids 23 of the containers 22 in order to reinforce the closure of the lids and seal the contents within the containers. Once the lids 23 of each container 22 have been pressed upon their respective base sections, tray-closing assembly 15 (not shown in FIG. 3) seals the containers.

[0035] FIG. 3 illustrates the steps taken by the apparatus 10 of the present invention. FIG. 3 shows apparatus 10 from the perspective of the discharge station 16 looking toward in-feed station 12. FIG. 3 shows a single container 22 moving on belt 14 from an initial position, i.e. at in-feed section 12, towards a discharge position, i.e. at discharge

station 16. In operation, as tray 22 is placed on belt 14, it begins moving towards discharge station 16 as motor 21 moves rollers 17 and 19, thereby moving belt 14 upon stand 20. The outside edge of base section 23 of each container 22 is prevented from extending past the back edge of assembly 10 by rear rail guide assembly 36. Lid 24 of container 22 is initially open and may extend over the front edge of assembly 10. However, lid 24 is slowly raised as lift rail assembly 30 projects underneath tray 22 proximate hinge 25.

[0036] As container 22 continues along belt 14, lift rail 30 raises lid 24, while base section 23 passes below joining member 35 of base-alignment rail assembly 32. Container 22 may be filled with content at this point in the process. As container 22 continues on its path, lift rail 30 continues to apply upward pressure on lid 24, gradually forcing lid 24 to a first, substantially vertical position, and then to a second, substantially closed position, as section 31 of lift rail 30 bends back toward the rear of stand 20. Lid 24, now closed upon base section 23, is pressed thereon by joining member 41 of press rail assembly 38. The process of sealing the containers performed by tray-closing assembly 15 occurs at this point in the process. A downward-sloping extension (not shown) may be added to apparatus 10 at the discharge station 14 to allow the containers 22 to fall into a collection bin where they can easily be removed.

[0037] Each of the rail assemblies of the present invention is adjustable. For example, lift rail 30 may be raised or lowered to accommodate containers 22 of different heights. The curvature of section 31 of lift rail 30 may also be adjusted to properly assure that lids 24 of different thicknesses are properly raised and closed upon base section 23. The components of rail assemblies 32 and 38 are also adjustable to account for various tray designs. The vertical members 33 are vertically extendable and their adjustment would raise or lower horizontal members 34 and, consequently, joining member 35. These adjustments serve to accommodate trays of different heights. Similarly, the components of rail assembly 38 may be raised or lowered in the same fashion and for the same purpose. In essence, therefore, the present invention is adaptable to differently shaped clamshell trays. Damaged rails may be easily replaced. Further, each rail of the tray-closing rail assembly may be removed from its present location along stand 20 and relocated to further accommodate different tray shapes.

[0038] FIG. 4 is a front view of the tray-closing assembly 15 shown in FIG. 1. Assembly 15 seals containers 22 as they travel along belt 14 by interlocking sealing flange 26 extending from lid 24 with sealing receptacle 27, which extends from base section 23. Assembly 15 is affixed to stand 20 in such a manner such that containers 22 traveling along belt 14 will pass in front of assembly 15. The height of assembly 15 is adjusted via wheel 42, which raises or lowers assembly 15. A shaft 43 extends the width of stand 20 and supports a larger sprocket 44. Sprocket 44 and smaller sprockets 45 and 46 support a chain 47 that allows assembly 15 to be raised or lowered upon bars 48. Shaft 43, sprockets 44, 45 and 46 and chain 47 make up a drive system that controls the rotation of the belts. An operator may simply turn wheel 42 and adjust the height of assembly 15 to accommodate containers 22 of varying heights.

[0039] FIG. 5 is a perspective view of a tray-closing assembly 15. Assembly 15 includes an upper belt assembly

48 and a lower belt assembly 54. Upper belt assembly 48 includes a forward pulley 49 and a rear pulley 50 (shown in FIG. 6) around which a timing belt 51 is secured. Lower belt assembly 54 includes lower forward pulley 55 and lower rear pulley 56 (not shown in FIG. 6) around which a timing belt 53 is secured. The bottom of belt 51 and the top of belt 53 can be seen in FIG. 5 extending below and above, respectively, of metal enclosure 59. Metal enclosure 59 houses the pulleys and belt in upper belt assembly 48 while metal enclosure 60 houses the pulleys and belt in lower belt assembly 54.

[0040] As containers 22 travel along belt 14, the lids 24 of each container have been lowered upon their respective base sections by lift rail 30. The rail system of the present invention orients the containers in such a fashion that sealing flange 26 travels within the gap formed by adjacent upper and lower belts. The movement of the belts applies downward pressure upon flange 26 resulting in the interlocking of flange 26 within receptacle 27 thereby sealing each container.

[0041] FIG. 6 shows tray-closing assembly 15 without metal enclosures 59 and 60, positioned above belt 14 in order to receive and seal containers 22 traveling along belt 14. Upper belt assembly 48 includes forward pulley 49 and rear pulley 50 around which timing belt 51 is secured. Lower belt assembly 54 includes lower forward pulley 55 and lower rear pulley 56 around which timing belt 53 is secured.

[0042] A belt adjustment guide 52 is mounted to upper belt assembly 48 via an attachment device such as a screw 58. Preferably, guide 52 is an L-shaped metal bracket that is secured to upper assembly 48 between the forward pulley 49 and rear pulley 50 via securing screw 58. Guide 52 can be tightened or loosened to adjust the tension of upper belt 51. By adjusting guide 52, the gap between upper belt 51 and lower belt 53 can be increased or decreased accordingly. The gap between upper belt 51 and lower belt 53 can be adjusted to seal any sized container. For example, typical gap widths for use in sealing containers are between 0.125 inches and 0.875 inches. Lower belt assembly 54, the top of which can be seen in FIG. 6 may also include a belt guide.

[0043] Forward pulley 49 is closer to the containers 22 as they travel along belt 14, while rear pulley 50 is further from the traveling containers. Forward pulley 49 is driven by a motor, which moves belt 51, while rear pulley 50 remains fixed about a stationary shaft. Forward pulley 49 is driven by the motor and rotates thereby allowing lower belt 53 to move about both pulleys. Similarly, lower forward pulley 55 is driven by the motor and rotates, thereby driving lower timing belt 53. Rear pulley 56 remains fixed with belt 53 revolving about it. Upper belt 51 and lower belt 53 are driven in opposite directions such that the portions of belts that press upon the containers as they pass along the conveyor belt are traveling in the same direction, i.e. the direction the containers are traveling.

[0044] It will be appreciated by persons skilled in the art that the present invention is not limited to what has been particularly shown and described herein above. In addition, unless mention was made above to the contrary, it should be noted that all of the accompanying drawings are not to scale. A variety of modifications and variations are possible in light of the above teachings without departing from the scope and spirit of the invention, which is limited only by the following claims.

1. A conveyor belt apparatus for closing hinged containers, the hinged containers comprising a base section hingedly coupled to a lid, the base section including a sealing receptacle and the lid including a sealing flange insertable within the sealing receptacle, the apparatus comprising:

a substantially horizontal support stand having a front edge, a back edge, a tray-receiving end and a tray-discharge end;

conveyor means disposed upon the support stand and adapted to move one or more containers from an initial position on the support stand to a final position on the support stand;

an adjustable rail guide assembly adapted to align the one or more containers and lower the lid of each container upon its base section as the one or more containers move from the initial position to the final position; and

a vertically-adjustable container-sealing assembly affixed to the horizontal support stand, the container-sealing assembly adapted to seal the lid of the hinged containers to the base section.

2. The conveyor belt apparatus of claim 1, the adjustable rail guide assembly comprising:

an alignment rail assembly for preventing the one or more containers from extending beyond an edge of the conveyor means; and

a container-closing rail assembly for closing the lids of the one or more containers upon their respective base sections.

3. The conveyor belt apparatus of claim 2, the container-closing rail assembly comprising an elongated lift rail affixed to and suspended above the support stand, the lift rail having a first section adapted to project beneath the lids of the one or more containers as the one or more containers move from the initial position to the final position.

4. The conveyor belt apparatus of claim 3, the lift rail further including a second, arcuate section, the second section extending toward the back edge of the support stand thereby lowering the lids of the one or more containers upon their respective base sections as the one or more containers move from the initial position to the final position.

5. The conveyor belt apparatus of claim 4, wherein the second section of lift rail is higher than the first section of the lift rail thereby facilitating closing of the lids of the one or more containers upon their respective base sections.

6. The conveyor belt apparatus of claim 2, the container-closing rail assembly further comprising a base alignment rail assembly for retaining the base sections of the one or more containers upon the support stand while the lids of the one or more containers are raised.

7. The conveyor belt apparatus of claim 6, the base alignment rail assembly comprising:

adjustable first and second substantially vertical support members affixed to and extending from the back edge of the support stand;

adjustable first and second substantially horizontal extension members having first and second ends wherein the first ends of the extension members are coupled to corresponding vertical support members and the sec-

ond ends of the extension members extend at least partially above the support stand; and

an elongated connection member joining the second ends of the extension members, the connection member adapted to press upon the base sections of the one or more containers as they move underneath the connection member.

8. The conveyor belt apparatus of claim 4, the container-closing rail assembly further comprising a press rail assembly adapted to press upon the lids of the one or more containers after the lids have been lowered upon their respective base sections by the second section of the lift rail.

9. The conveyor belt apparatus of claim 8, the press rail assembly comprising:

adjustable first and second substantially vertical support members affixed to and extending from the front edge of the support stand;

adjustable first and second substantially horizontal extension members having first and second ends wherein the first ends of the extension members are coupled to corresponding vertical support members and the second ends of the extension members extend at least partially above the support stand; and

an elongated connection member joining the second ends of the extension members, the connection member adapted to press upon the lids of the one or more containers as they move underneath the connection member.

10. The conveyor belt apparatus of claim 2, the alignment rail assembly further comprising an elongated rear rail guide assembly for preventing a rear edge of the base section of the one or more containers from extending beyond a rear edge of the support stand.

11. The conveyor belt apparatus of claim 2, the alignment rail assembly further comprising an elongated front edge rail guide for preventing a front edge of the base section of the one or more containers from extending beyond a front edge of the support stand.

12. The conveyor belt apparatus of claim 1 further comprising a filling station positioned between the initial position and the final position for filling the hinged containers.

13. The conveyor belt apparatus of claim 1, wherein the tray-discharge end includes a substantially downward sloping surface.

14. The conveyor belt apparatus of claim 1, the vertically-adjustable container-sealing assembly comprising:

an upper belt assembly including an upper belt; and

a lower belt assembly including a lower belt; wherein the upper and lower belts each rotate about a pair of pulleys, at least one of the pulleys rotatable about an axis substantially parallel to the horizontal surface of the support stand, the upper and lower belts separable by a gap formed between the upper belt assembly and the lower belt assembly, the gap and rotating belts adapted to join the sealing flange to the sealing receptacle as the sealing flange and sealing receptacle of the one or more containers pass through the gap thereby

sealing the lids of the one or more containers to their respective base sections.

15. The conveyor belt apparatus of claim 14, wherein the upper belt assembly further includes a belt adjustment guide adapted to adjust the tension of the upper belt thereby

adjusting the gap dimension in order to accommodating different container sizes.

16-19. (canceled)

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