

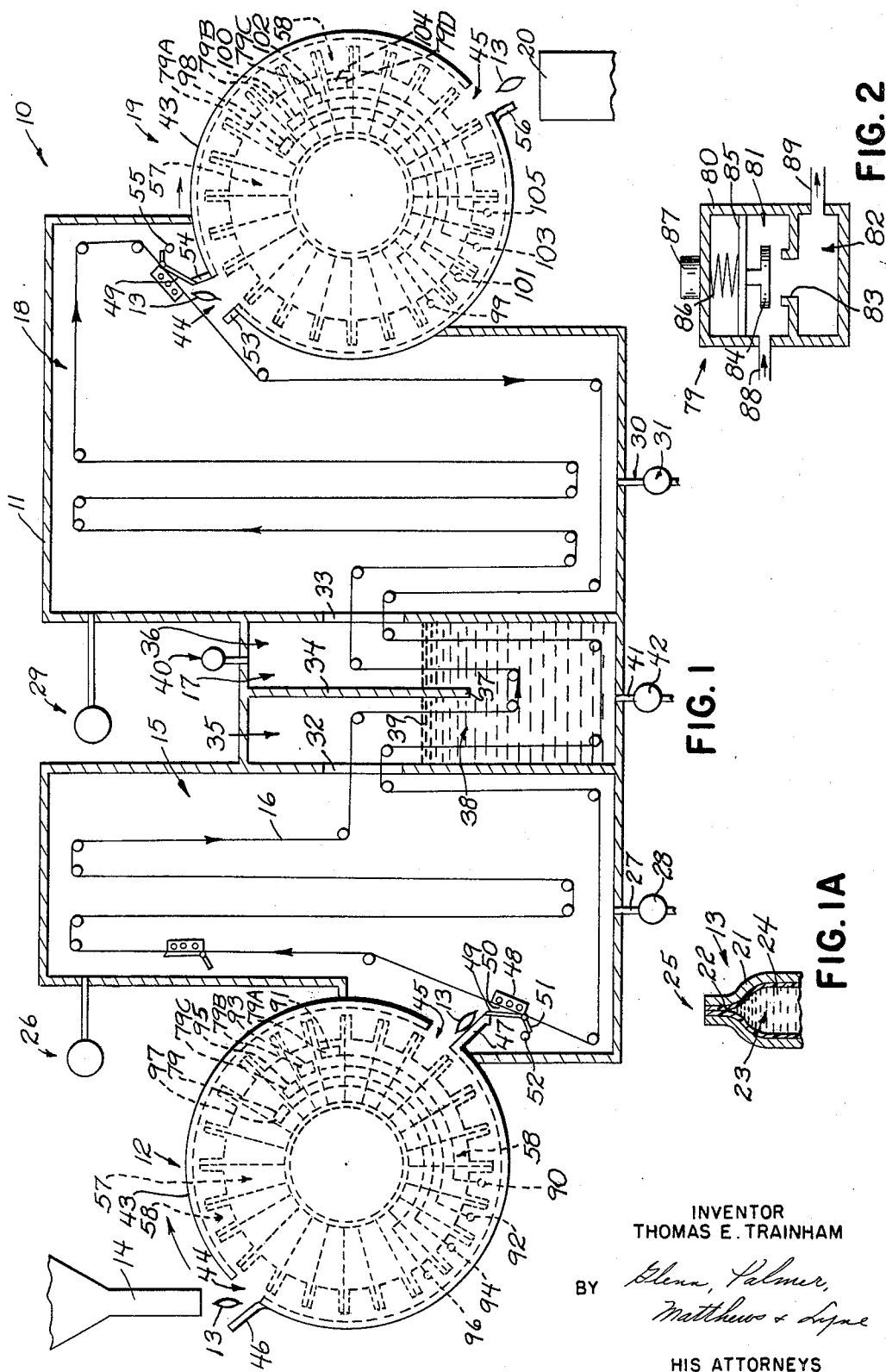
Dec. 2, 1969

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APPARATUS FOR CONTINUOUSLY AUTOCLAVING POUCH
CONSTRUCTIONS AND THE LIKE

3,481,691

Filed Nov. 14, 1966

2 Sheets-Sheet 1



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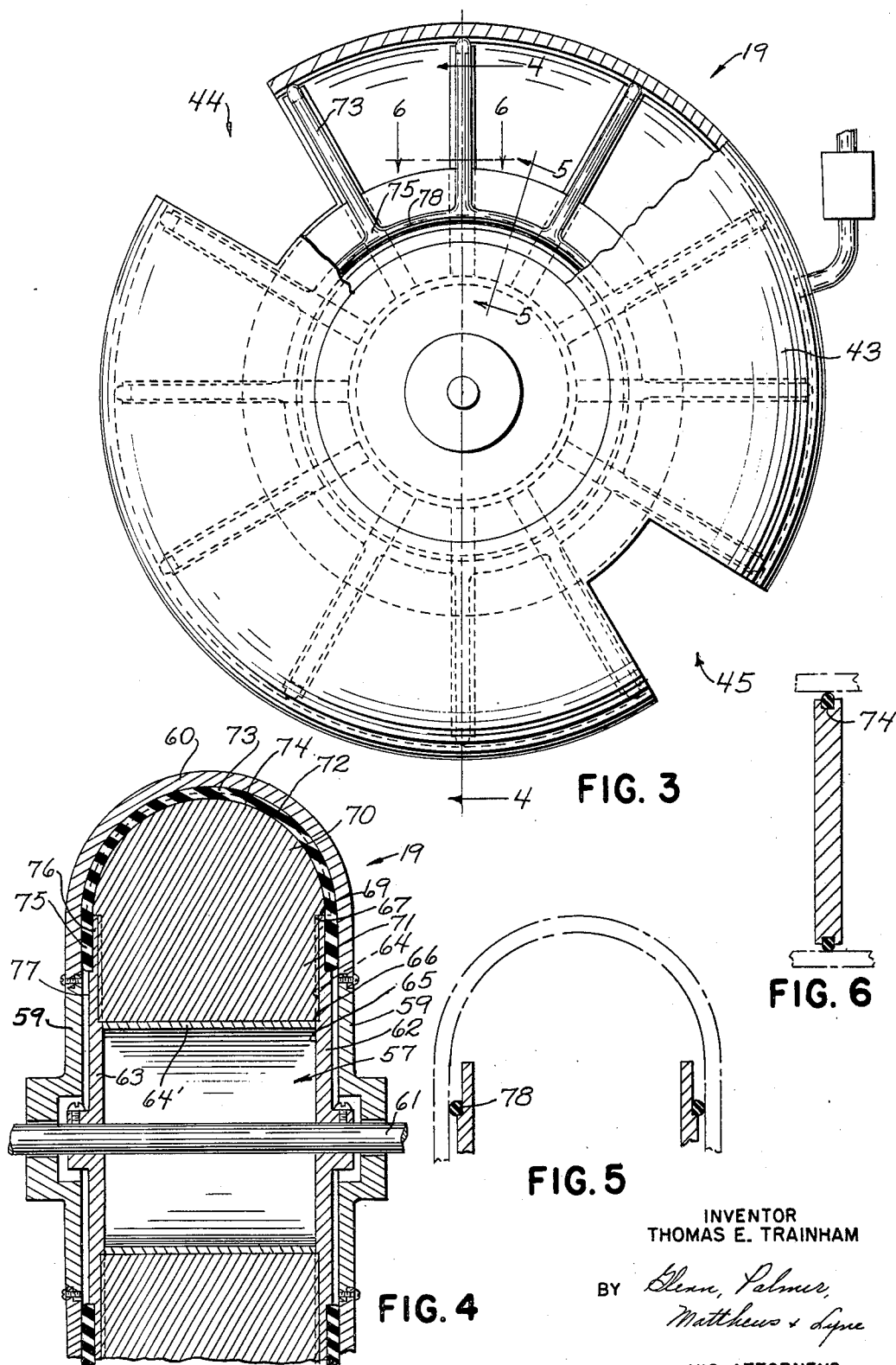


FIG. 5

FIG. 6

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3,481,691 APPARATUS FOR CONTINUOUSLY AUTOCLAVING POUCH CONSTRUCTIONS AND THE LIKE

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ABSTRACT OF THE DISCLOSURE

Apparatus for continuously feeding product-containing flexible pouch construction means into an autoclaving chamber of a housing means to be autoclaved therein and then be continuously fed from the housing means to the exterior thereof, the pouch construction means being placed under pressure on the exterior thereof during the autoclaving operation to prevent the internal pressure created in the pouch construction means, during the autoclaving operation, from adversely affecting the non-rigid pouch construction means.

It has been found according to the teachings of this invention that many food products and the like can be packaged in metallic foil pouch constructions or the like and be hermetically sealed therein to be subsequently cooked and/or sterilized by an autoclaving operation before the merchandising of the same to the ultimate consumers so that the food products can be preserved in the non-rigid pouch constructions of a relatively long period of time before the food product or the like is utilized by the ultimate consumer.

However, it has also been found according to the teachings of this invention, that the internal pressures created in such non-rigid package constructions during the aforementioned autoclaving operation tend to destroy or otherwise adversely effect such sealed closed pouch constructions whereby one of the features of this invention is to pressurize the autoclaving chamber with a pressure that prevents the internal pressures created in such pouch constructions during the autoclaving operation from adversely affecting the same.

A further feature of this invention is to provide means for continuously feeding such pouch constructions from the exterior of the apparatus into the autoclaving chamber and, thereafter, continuously removing the autoclaved pouch constructions from the interior of the apparatus.

In particular, one embodiment of this invention provides transfer means which will continuously transfer the pouch constructions between the exterior of the apparatus and the interior thereof while progressively changing the external pressure on the pouch construction during the transferring operation. For example, when the transferring means is transferring the pouch constructions from the exterior of the apparatus into the interior thereof, the transfer means increases the external pressure on the pouch constructions whereas when the transfer means is removing the pouch constructions from the apparatus, the transfer means decreases the pressure thereon to substantially normal atmospheric conditions.

While flexible pouch constructions are illustrated in the drawings and are hereinafter described as being formed of metallic foil and heat sealable material, the terms "product-containing flexible pouch construction" and the like utilized in this description and appended claims are intended to cover and refer to other types of non-rigid product-containing receptacles having any desired configuration and being formed of any suitable

material or materials suitable for an autoclaving operation or the like as hereinafter set forth.

Accordingly, it is an object of this invention to provide an improved method for continuously autoclaving product-containing flexible pouch constructions or the like, the method of this invention having one or more of the novel features set forth above or hereinafter shown or described.

Another object of this invention is to provide an improved apparatus for continuously autoclaving product-containing flexible pouch constructions or the like, the apparatus of this invention having one or more of the novel features set forth above or hereinafter shown or described.

Other objects, uses and advantages of this invention are apparent from a reading of this description which proceeds with reference to the accompanying drawings forming a part thereof and wherein:

FIGURE 1 is a cross-sectional schematic view illustrating the improved method and apparatus of this invention.

FIGURE 1A is a fragmentary, enlarged cross-sectional view of one of the product-containing flexible pouch constructions.

FIGURE 2 is a fragmentary, cross-sectional view illustrating a typical pressure regulator means utilized with the apparatus of FIGURE 1.

FIGURE 3 is a side view of one of the pouch transfer means of the apparatus of FIGURE 1 with FIGURE 3 being partially broken away and illustrating a reduced number of pocket means in the transfer wheel from the number of pocket means illustrated in FIGURE 1.

FIGURE 4 is a fragmentary, cross-sectional view taken on line 4—4 of FIGURE 3.

FIGURE 5 is a fragmentary, cross-sectional view taken on line 5—5 of FIGURE 3.

FIGURE 6 is a fragmentary, cross-sectional view taken on line 6—6 of FIGURE 3.

While the various features of this invention are herein-after described and illustrated as being particularly adaptable for continuously autoclaving product-filled flexible pouch constructions formed of metallic foil, it is to be understood that the various features of this invention can be utilized singly or in various combinations thereof to provide means of autoclaving other types of substantially non-rigid package constructions, as desired.

Therefore, this invention is not to be limited to only the embodiments illustrated in the drawings, because the drawings are merely utilized to illustrate one of the wide variety of uses of the invention.

Referring now to FIGURE 1, the improved apparatus of this invention is generally indicated by the reference numeral 10 and comprises a housing means 11 having a feeding or transfer means 12 for serially feeding product-filled flexible pouch constructions 13 from a hopper means 14 into an autoclaving chamber 15 of the housing means 11 to be carried therethrough by a continuously moving conveying means 16. The conveying means 16 continuously conveys the pouch constructions 13 from the autoclaving chamber 15 through an intermediate chamber 17 of the housing means 11 and into a cooling chamber 18. The housing means 11 includes a removing or second transfer means 19 for serially removing the pouch constructions 13 from the cooling chamber 18 and feeding the same to the exterior of the housing means 11, such as into a suitable container means 20 as illustrated.

The pouch constructions 13 can each be formed in the manner illustrated in FIGURE 1A wherein the pouch construction 13 includes an outer layer of metallic foil 21, such as aluminum containing metallic foil, laminated to an inner heat sealable layer 22, such as polyvinyl-

chloride or the like, with the laminated sheet means 21, 22 being so constructed and arranged that the same define a product-receiving compartment 23 containing a food product 24 or the like hermetically sealed therein by having the facing heat sealable layer means 22 heat sealed to itself at the outer seams 25 thereof. In this manner, it can be seen that the food product means 24 is fully hermetically sealed in the pouch construction means 13 while the sheet means 21, 22 render the pouch construction 13 relatively flexible and, thus, non-rigid.

Since it is desired to autoclave such product-filled pouch constructions 13 for a predetermined length of time in the autoclaving chamber 15 of the apparatus 10 of this invention at approximately 250° F., the steam or other pressures created internally in the chambers 23 of the pouch constructions 13 during such autoclaving operation would tend to burst or otherwise adversely effect the flexible and non-rigid pouch construction means 13 in such a manner that conventional autoclaving operations cannot be performed on the product-filled non-rigid pouch constructions 13.

However, the method and apparatus 10 of this invention is so constructed and arranged that the autoclaving chamber 15 of the housing means 11 is adapted to be pressurized to a predetermined pressure during the autoclaving operation therein which will counter balance or offset the internal pressures created in the chambers 23 of the pouch constructions 13 so that such internal pressures will not adversely effect such pouch constructions 13 in the manner set forth above.

In particular, steam or the like is adapted to be introduced into the autoclaving chamber 15 under a predetermined pressure from a source means 26 to not only pressurize the autoclaving chamber 15 for the aforementioned purpose, but to also provide the autoclaving fluid for autoclaving the pouch constructions 13 being conveyed through the autoclaving chamber 15 by the conveyor means 16 for a predetermined length of time and at a desired temperature, such as the aforementioned 250° F. A suitable vent conduit 27 is disposed in fluid communication with the autoclaving chamber 15 and is controlled by a pressure operated valve means 28 to cooperate with the source means 26 to maintain the desired pressure in the autoclaving chamber 15, such as in the order of 20 p.s.i.g.

The cooling chamber 18 of the housing means 11 is likewise pressurized to the same pressure as the autoclaving chamber 15 by a pressure producing source means 29, such as by refrigerated compressed air or the like, cooperating with a suitable vent conduit means 30 controlled by a pressure operated valve means 31 to maintain the pressure in the cooling chamber 18 at the same pressure being maintained in the autoclaving chamber 15. Also or alternately, the cooling chamber 18 could be cooled by cooling elements disposed therein or by water being introduced therein, the purpose of the cooling chamber 18 being to reduce the temperature of the autoclaved pouch constructions 13 conveyed therethrough by the conveying means 16 to a desired temperature before the same are delivered to the exterior of the housing means 11 by the transfer means 19 in a manner herein-after set forth.

In order to separate the autoclaving fluid in the chamber 15 from the cooling fluid in the chamber 18, the intermediate chamber 17 of the housing means 11 is interconnected to the autoclaving chamber 15 by a passage means 32 and to the cooling chamber 18 by a passage means 33, the passage means 32 and 33 permitting the conveyor means 16 to pass therethrough.

However, an intermediate wall 34 is provided in the intermediate chamber 17 to divide the upper portion of the chamber 17 into separate sections 35 and 36 respectively interconnected to the passage means 32 and 33. The lower end 37 of the wall 34 is submerged in a body of liquid 38 having its surface 39 disposed above the end

37 of the wall 34 whereby autoclaving fluid from the chamber 15 which enters the section 35 of the intermediate chamber 17 is prevented from communicating with the cooling fluid in the chamber 18 which enters the section 36 of the intermediate chamber 17 by the so-called "water lock" means 38, such body of liquid 38 preventing such communication as the pressure imposed on the surface 39 thereof is equal in the chamber sections 35 and 36.

In order to maintain the liquid 38 at the level 39, additional amounts of the liquid 38 can be introduced into the intermediate chamber 17 from a supply means 40 while overfilling of the liquid 38 in the chamber 17 can be controlled by a vent conduit means 41 controlled by a valve means 42. For example, since the conveyor means 16 convey the autoclaved pouch constructions 13 into the body of liquid 38 around the lower end 37 of the wall 34 and upwardly to the passage means 33 for the cooling chamber 18, a condensing action takes place which might tend to raise the level 39 of the body of liquid 38. However, any condensate that increases the level 39 of the liquid 38 could actuate a float means that would control the valve means 42 in a manner to maintain the liquid level 39 at a preselected position.

The transfer means 12 and 19 each comprises a passage defining means 43 having openings 44 and 45 in the outer periphery thereof, the opening 44 in the passage defining means 43 of the feeding means 12 having a pouch deflecting guide 46 on the lower side thereof to guide each pouch construction 13 into the opening 44 as the respective pouch construction 13 falls by gravity from the lower end of the feeding hopper means 14. Similarly, a lower guide means 47 is formed adjacent the opening 45 of the passage defining means 43 of the transfer means 12 to guide the pouch construction 13 falling out of the opening 45 by gravity onto the conveyor means 16 to be subsequently conveyed thereby.

In particular, the conveyor means 16 can comprise a continuously moving chain, belt, web or the like carrying a plurality of open ended perforated baskets or receptacles 48 having lid means 49 normally urged to their closed positions against the open ends 50 of the receptacles 48 by suitable spring means or the like. However, as each receptacle 48 approaches the outlet opening 45 of the transfer means 12, an outwardly extending tang 51 on a particular lid or cover 49 will cam against suitable abutment means 52 to cam open the lid 49 in the manner illustrated in FIGURE 1 to permit the falling pouch construction 13 to be received within the open end 50 of the receptacle 48. After the tang 51 of the particular receptacle 48 passes beyond the abutment 52, the lid 49 closes under spring pressure or the like to maintain the pouch construction 13 therein throughout the entire movement of the receptacle 48 through the autoclaving chamber 15, intermediate chamber 17 and cooling chamber 18 until the same approaches the inlet opening 44 of the transfer means 19. As illustrated in FIGURE 1, the inlet opening 44 of the passage defining means 43 of the removing means or transfer means 19 has guide means 53 and 54 thereon which will guide the falling pouch construction 13 into the inlet 44 as the lid 49 of a respective receptacle 48 is being cammed open by an abutment means 55 in the same manner as the abutment means 52 previously described.

A guide means 56 is carried adjacent the outlet opening 45 of the transfer means 19 to assist in guiding a pouch construction 13 falling by gravity out of the opening 45 into the supply means 20 wherein the pouch constructions 13 can be packaged for subsequent storing, shipping and merchandizing thereof, as desired.

Each transfer means 12 and 19 includes a rotatable member 57 disposed in the respective passage defining means 43 to rotate relative thereto and serially carry the pouch constructions 13 being received at the inlet 44 thereof to the outlet 45 thereof, each rotatable member 57 having a plurality of radially outwardly directed pocket

means 58 disposed about the same for individually carrying such pouch constructions 13.

The details of each transfer means 12 and 19 are substantially identical to each other whereby only the details of the transfer means 19 will be fully described in connection with FIGURES 3-6 with it being understood that such details also apply for the transfer means 12 except for certain functions thereof hereinafter set forth.

As illustrated in FIGURES 3 and 4, the passage defining means 43 of the transfer means 19 includes a pair of opposed disc-shaped side member 59 suitably secured to an end wall means 60 having the arcuate configuration illustrated in cross section in FIGURE 4 and being cut-away to define the inlet and outlet openings 44 and 45 in the manner illustrated in FIGURE 3.

The rotatable member 57 is disposed within the passage defining means 43 and is fixed to a shaft 61 rotatably mounted in the end members 59 as illustrated in FIGURE 4 whereby the member 57 is adapted to rotate relative to the passage defining means 43.

The rotatable member 57 includes a pair of spaced disc members 62 and 63 interconnected together by a cylindrical hub member 64' concentrically disposed about the shaft 61. Each member 62 and 63 has a plurality of slots 64 formed in the inner surface 65 thereof and disposed radially about the same, each slot 64 having its inner end 66 terminating at the cylindrical member 64' and its outer end 67 extending to the outer peripheral surface 69 of the particular member 62 or 63.

A plurality of metallic baffle members 70 or the like have substantially rectangular tongue portions 71 received in aligned slots 64 in the members 62 and 63 in the manner illustrated in FIGURE 4 and are secured therein and to the cylindrical member 64' to define the lower parts of the pouch receiving pockets 58 previously described.

A resilient gasket means 72 is provided to permit fluid sealing of each pocket 58 from the others as the particular pocket is being moved between the inlet 44 and outlet 45 of the passage defining means 43.

In particular, the gasket means 72 comprises a substantially integral flexible member having a plurality of loops 73 respectively received in grooves 74 formed around the outer D-shaped ends 74 of each baffle means 70 in the manner illustrated in FIGURES 4 and 6 and having the lower ends 75 thereof received in radial grooves 76 formed in the outer surfaces 77 of the hub members 62 and 63 as illustrated in FIGURE 4. Each loop 73 of the gasket means 72 has the lower ends 75 thereof integrally interconnected to the lower ends 75 of adjacent loops 73 by arcuate side parts 78 in the manner illustrated in FIGURES 4 and 5.

In this manner, the gasket means 72 rotates in unison with the rotatable member 57 while fluid sealing each pocket means 58 from adjacent pocket means 58 as the particular pocket means 58 moves from the opening 44 in the passage defining means 43 to the outlet opening 45 thereof for a purpose now to be described.

As previously stated, since the chambers 15, 17 and 18 of the housing means 11 are pressurized to a pressure to prevent the internal pressures developed in the pouch constructions 13 from adversely affecting the sealed condition of the non-rigid layer means 21, 22 around the product means 24 during the autoclaving operation in the chamber 15, the transfer means 12 and 19 respectively seal the chambers 15 and 18 from the exterior of the housing means 11 even though the transfer means 12 has its opening 44 in communication with the atmosphere and the transfer means 19 has its opening 45 in communication with the atmosphere to permit the continuous feeding and removing operations of the pouch constructions 13 in the manner previously set forth, such sealed relation being provided by the effective sealing of the pocket means 58 of the rotatable member 57 to the inside surfaces of the passage defining means 43 through the resilient gasket means 72 previously described.

However, the transfer means 12 is also adapted to not only prevent the pocket means 58 of the rotatable member 57 from venting the pressure from the autoclaving chamber 15 during movement of a pocket means 58 adjacent the opening 45 in a clockwise direction to the opening 44, but also is adapted to progressively increase the pressure on the exterior of each pouch construction 13 as the same is being conveyed from the inlet opening 44 to the outlet opening 45, the transfer means 12 including one or more pressure regulator means 79 of a conventional form for transferring pressures between the pocket means 58 of the rotatable member 57.

For example, each pressure regulator means 79 can be of the type illustrated in FIGURE 2 wherein a housing means 80 is separated into two chambers 81 and 82 by a valve seat means 83 adapted to be opened and closed by a valve member 84 carried by a flexible diaphragm 85 closing the upper end of the chamber 81. The diaphragm 85 is normally urged toward the valve seat 83 by a compression spring 86 having its urging force adjustable by conventional adjusting means 87 in a manner well known in the art. The chamber 81 of the regulator 79 is adapted to be interconnected to a source of high pressure by a conduit means 88 while the chamber 82 is adapted to be interconnected to a source of lower pressure by a conduit means 89.

In this manner, should the source of high pressure fluid being interconnected to the chamber 81 of the regulator 79 by the conduit 88 be approximately 20 p.s.i.g., the regulator 79 can be adjusted by the adjusting means 87 to only permit the high pressure source at the conduit 88 to be reduced by approximately 5 p.s.i.g. so that the lower pressure source interconnected to the chamber 82 by the conduit means 89 will only have its pressure increased by approximately 5 p.s.i.g.

For example, when the pressure in the chamber 81 being delivered thereto by the conduit 88 is at approximately 20 p.s.i.g., such force acting upwardly on the diaphragm 85 in opposition to the force of the compression spring 86 will maintain the valve member 84 away from the valve seat 83 so that the pressure fluid can pass into the chamber 82 and through the conduit 89 to increase the lower pressure source interconnected thereto. However, when the pressure in the chamber 81 has been reduced to approximately 15 p.s.i.g., the compression spring 86 overcomes the force of the pressure in the chamber 81 to move the flexible diaphragm 85 downwardly in FIGURE 2 and seat the valve member 84 against the valve seat 83 to terminate the passage of pressure fluid through the valve seat 83 until the pressure in the chamber 81 should again increase above the set 15 p.s.i.g.

Four such pressure regulator means 79 are utilized in connection with the transfer means 12 in a manner now to be described, each regulator means 79 being adapted to reduce the pressure source connected to its inlet chamber 81 by approximately 5 p.s.i.g. while correspondingly increasing the pressure source connected to the outlet chamber 82 by approximately 5 p.s.i.g.

A first pressure regulator means 79A has its inlet conduit means 88 disposed in fluid communication with the interior of the passage defining means 43 at the point 90 so as to be in fluid communication with each pocket means 58 as each pocket means 58 rotates in a clockwise direction from the outlet opening 45 to the inlet opening 44 whereby each pocket means 58 at the point 90 has a pressure substantially equal to the pressure in the autoclaving chamber 15 which in the aforementioned example is approximately 20 p.s.i.g. The regulator 79A has its outlet conduit 89 also disposed in fluid communication with the interior of the chamber defining means 43 at the point 91 so as to be in fluid communication with each pocket means 58 as the same rotates in a clockwise direction from the inlet opening 44 to the outlet opening 45.

Similarly, a regulator means 79B has its inlet conduit 88 in fluid communication with the rotating pocket means 58 at the point 92 and its outlet 89 at the point 93, a regulator means 79C and a regulator means 79D have their inlet conduits 88 respectively disposed in fluid communication with the rotating pockets 58 at the points 94 and 96 while their outlet conduits 89 are respectively in fluid communication with the rotating pocket means 58 at the points 95 and 97.

In this manner, as each pocket 58 reaches the point 90 in its clockwise rotation from the outlet opening 45, the pressure regulator means 79A reduces the pressure in the respective pocket 58 by approximately 5 p.s.i.g. while boosting the pressure in the pocket 58 at the point 91 by 5 p.s.i.g. Thus, when a particular pocket means 58 reaches the point 96, the pressure thereof has been progressively reduced to substantially atmospheric pressure by the regulator means 79A, 79B, 79C and 79D respectively reducing the pressure therein from its original 20 p.s.i.g. at the opening 45 in stepped 5 p.s.i.g. increments in the manner previously described. Conversely, as each pocket means 58 carries a received pouch construction means 13 from the inlet opening 44 toward the outlet opening 45, the pressure imposed on the pouch construction 13 is progressively increased from the normal atmospheric pressure at the opening 44 to approximately 5 p.s.i.g. at the point 97 by the regulator means 79D, to approximately 10 p.s.i.g. at the point 95 by the regulator means 79C, to approximately 15 p.s.i.g. at the point 93 by the regulator means 79B and to approximately 20 p.s.i.g. at the point 91 by the regulator means 79A so as to be substantially at the same pressure as the pressure provided in the autoclaving chamber 15 before the same enters the chamber 15 at the outlet opening 45 of the transfer means 12.

The transfer means 19 also operates in a like manner to progressively reduce the pressure on the exterior of each pouch construction 13 being carried by the pocket means 58 of the rotatable member 57 as the respective pocket means 58 moves from the inlet opening 44 to the outlet opening 45 thereof while at the same time progressively increasing the pressure on each pocket 58 as the same rotates from the outlet opening 45 back to the inlet opening 44 in a clockwise direction.

In particular, the pressure regulator means 79A of the transfer means 19 reduces the pressure in each pocket 58 as the same moves from the inlet 44 to the point 98 and increases the pressure in each pocket means 58 as the same rotates from the outlet opening 45 to the point 99 as the inlet conduit 88 is in fluid communication with the interior of the passage defining means 43 at the point 98 while the outlet conduit means 89 thereof is disposed in fluid communication with the interior of the passage defining means 43 at the point 99. Similarly, the pressure regulator means 79B reduces the pressure in each pocket means 58 by approximately 5 p.s.i.g. when the same reaches the point 100 and correspondingly increases the pressure in each pocket means 58 by approximately 5 p.s.i.g. when the same reaches the point 101, the pressure regulator means 79C and 79D respectively reducing the pressure of each pocket means 58 by approximately 5 p.s.i.g. as each pocket means respectively reaches the points 102 and 104 while correspondingly increasing the pressure in each pocket means 58 as the same respectively reaches the points 103 and 105.

In this manner, the desired pressures inside the housing means 11 are substantially maintained by the transfer means 12 and 19 while still permitting the transfer means 12 and 19 to respectively communicate with the exterior of the housing means 11 and the interior thereof, the transfer means 12 progressively increasing the pressure on each pouch construction 13 from its atmospheric condition at the inlet 44 to approximately the same pressure as the pressure in the autoclaving chamber 15 before the same is received in the chamber 15 and the transfer means

19 progressively reducing the pressure on the exterior of each pouch construction 13 from the pressure imposed thereon in the chamber 18 to substantially normal atmospheric pressure before the same is deposited outside the housing means 11 at the outlet opening 45.

Accordingly, it can be seen that the method and apparatus of this invention permit a continuous autoclaving operation by continuously feeding pouch constructions into the housing means by a feeding means and continuously transferring such autoclaved pouch constructions 13 from the interior of the housing means to the exterior thereof by removing means.

While the form of the invention now preferred has been disclosed as required by statute, other forms may be used, all coming within the scope of the claimed subject matter which follows.

What is claimed is:

1. Apparatus for continuously autoclaving product-containing flexible pouch constructions and the like comprising housing means having an autoclaving chamber therein, conveying means disposed in said chamber for conveying said pouch constructions therethrough, means for pressurizing said autoclaving chamber with autoclaving fluid to autoclave said pouch constructions as they are conveyed therethrough, said housing means having means for continuously feeding said pouch constructions from the exterior of said housing means into said autoclaving chamber to be carried therethrough by said conveying means, said housing means having means for continuously removing said pouch constructions from the interior of said housing means and feeding the same to the exterior thereof after said pouch constructions have been autoclaved, at least one of said feeding means and said removing means comprises a rotatable member having pouch-receiving pocket means radially disposed therein, passage defining means interconnecting the exterior of said housing means with the interior thereof and having a pair of openings respectively in communication with the exterior and the interior of said housing means, said member being rotatable in said passage defining means to substantially seal closed said pocket means as said pocket means move between said openings and to serially bring said pocket means into alignment with said openings thereof, said passage defining means having a plurality of conduit means respectively fluidly interconnecting certain of said pocket means as said certain pocket means pass from one of said openings to the other of said openings to other of said pocket means as said other pocket means pass from said other opening to said one opening, and pressure regulator means in each of said conduit means to limit the degree of pressure reduction from one pocket means to its interconnected pocket means through the respective conduit means as said member rotates.

2. Apparatus as set forth in claim 1 wherein said feeding means comprises means for increasing the pressure on the exterior of each pouch construction from its normal atmospheric pressure before said pouch construction is received in said autoclaving chamber.

3. Apparatus as set forth in claim 1 wherein said feeding means comprises means for progressively increasing the pressure on the exterior of each pouch construction as the same moves from the exterior of said housing means into said autoclaving chamber.

4. Apparatus as set forth in claim 1 wherein said removing means comprises means for decreasing the pressure on the exterior of each pouch construction from the pressure imposed thereon in said housing means before said pouch construction is fed to the exterior of said housing means by said removing means.

5. Apparatus as set forth in claim 1 wherein said removing means comprises means for progressively decreasing the pressure on the exterior of each pouch construction as the same moves from the interior of said housing means to the exterior thereof.

6. Apparatus as set forth in claim 1 wherein said pressurizing means pressurizes said autoclaving chamber with a pressure in excess of the internal pressure created inside each pouch construction during its autoclaving in said autoclaving chamber.

7. Apparatus as set forth in claim 1 wherein said housing means has a cooling chamber separated from said autoclaving chamber, said conveying means continuously conveying said pouch constructions from said autoclaving chamber into said cooling chamber, and means for pressurizing said cooling chamber with fluid.

8. Apparatus as set forth in claim 7 wherein said removing means removes said pouch constructions from said cooling chamber and feeds the same to the exterior of said housing means.

9. Apparatus as set forth in claim 7 wherein said feeding means progressively increases the pressure on the exterior of each pouch construction from its normal atmospheric pressure to substantially the same pressure level as the level of pressure in said autoclaving chamber before said feeding means disposes said pouch construction into said autoclaving chamber.

10. Apparatus as set forth in claim 7 wherein said removing means progressively reduces the pressure on the exterior of each pouch construction from the level of pressure in said cooling chamber to substantially atmospheric pressure before said removing means disposes said pouch construction to the exterior of said housing means.

11. Apparatus as set forth in claim 7 wherein said housing means has an intermediate chamber disposed between said autoclaving chamber and said cooling chamber while being in fluid communication with said chambers.

12. Apparatus as set forth in claim 11 wherein said con-

veying means conveys said pouch constructions from said autoclaving chamber, through said intermediate chamber and into said cooling chamber.

13. Apparatus as set forth in claim 12 and including liquid means disposed in said intermediate chamber to block fluid engagement between said autoclaving fluid and said pressurizing fluid in said cooling chamber.

14. Apparatus as set forth in claim 13 wherein said means for pressurizing said autoclaving chamber and said means for pressurizing said cooling chamber pressurize said chambers to the same pressure level.

15. Apparatus as set forth in claim 14 wherein said pressurizing means pressurize said chambers to a pressure of approximately 20 p.s.i.g.

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