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[54] **COMPRESSION PACKER APPARATUS HAVING A DOOR**
39 Claims, 15 Drawing Figs.

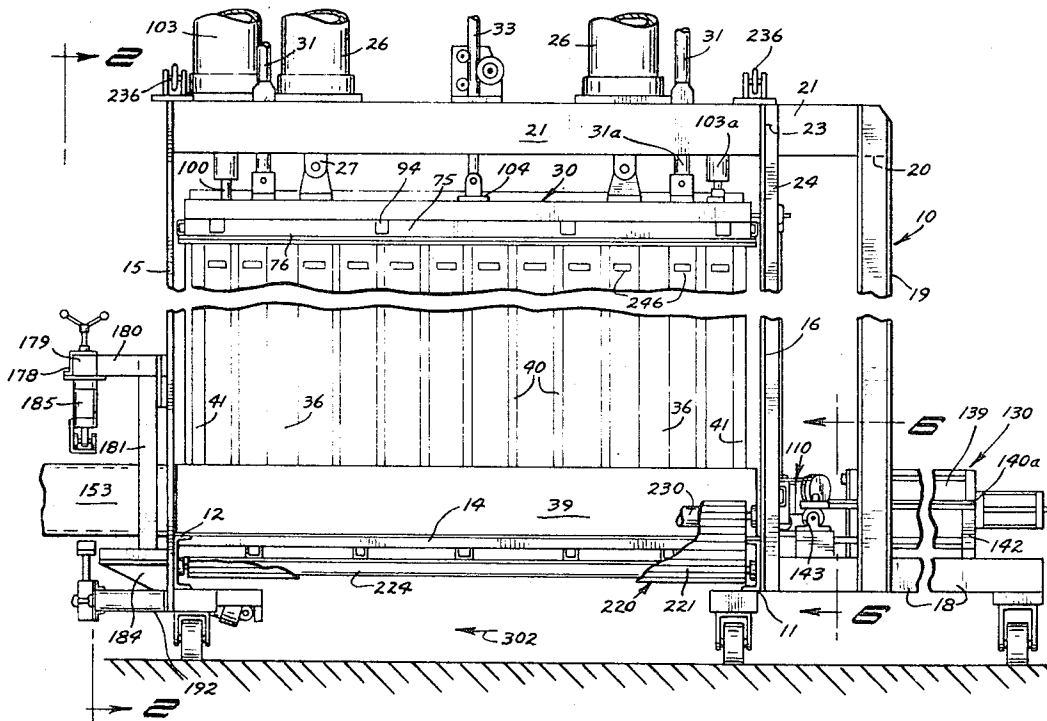
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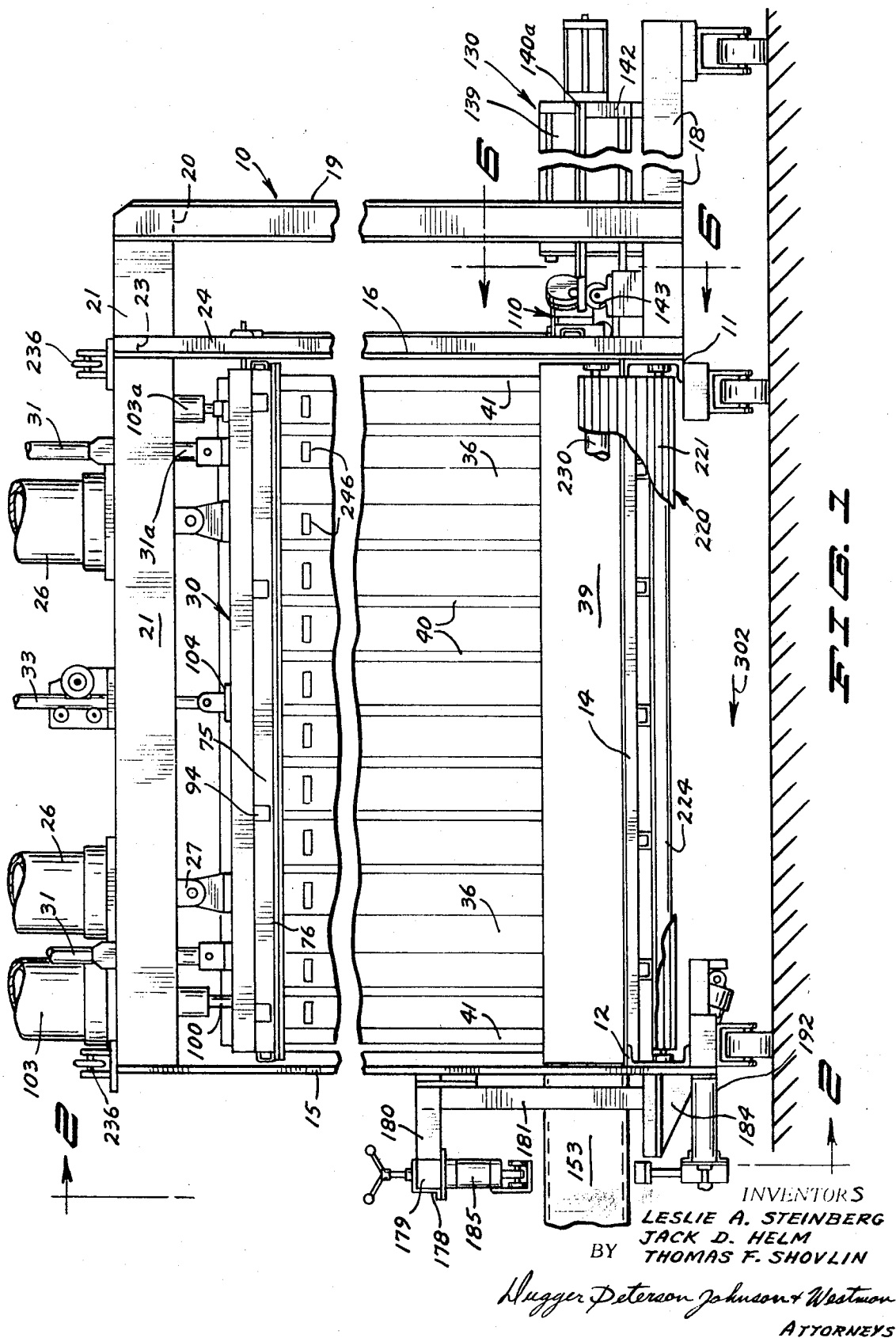
ABSTRACT: Compression packing apparatus having a bottom press plate, sidewalls, a transversely movable backwall assembly for varying the width of the loading chamber, a vertical ram assembly, a horizontal ram assembly, a spout assembly and drive mechanism for translating the backwall assembly for selectively varying the width of the loading chamber. Each of the vertical ram, horizontal ram and spout assemblies have extensible portions connected to the backwall assembly to be moved thereby between extended and retracted positions. Further, there is provided a horizontally slatted-type door for closing the loading opening that may be moved to a closed position by selected increments for progressively more nearly closing the loading opening, the door being movable vertically upwardly toward a closing position. Additionally, there is provided a precompression assembly.



Patented Aug. 24, 1971

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7 Sheets-Sheet 2

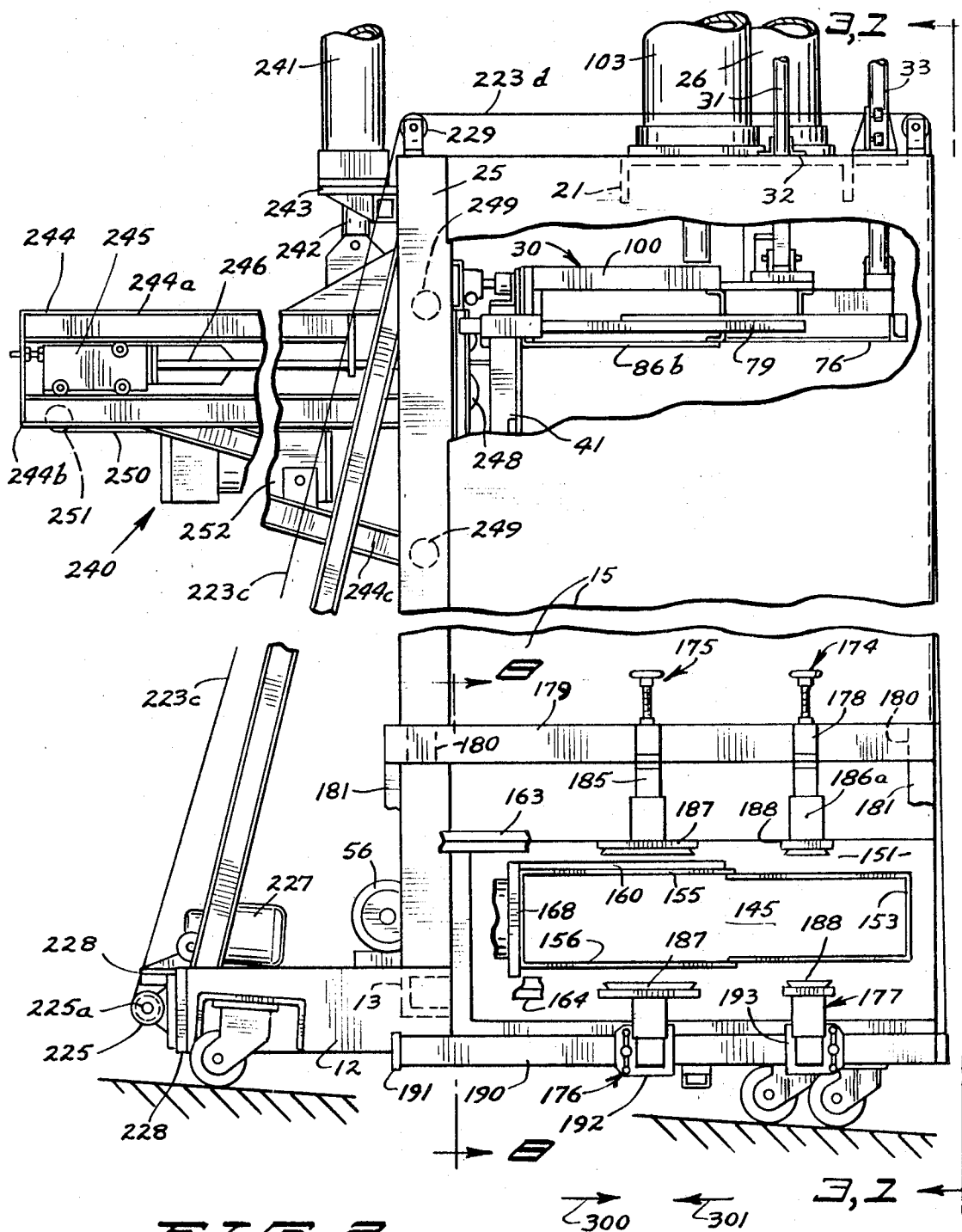
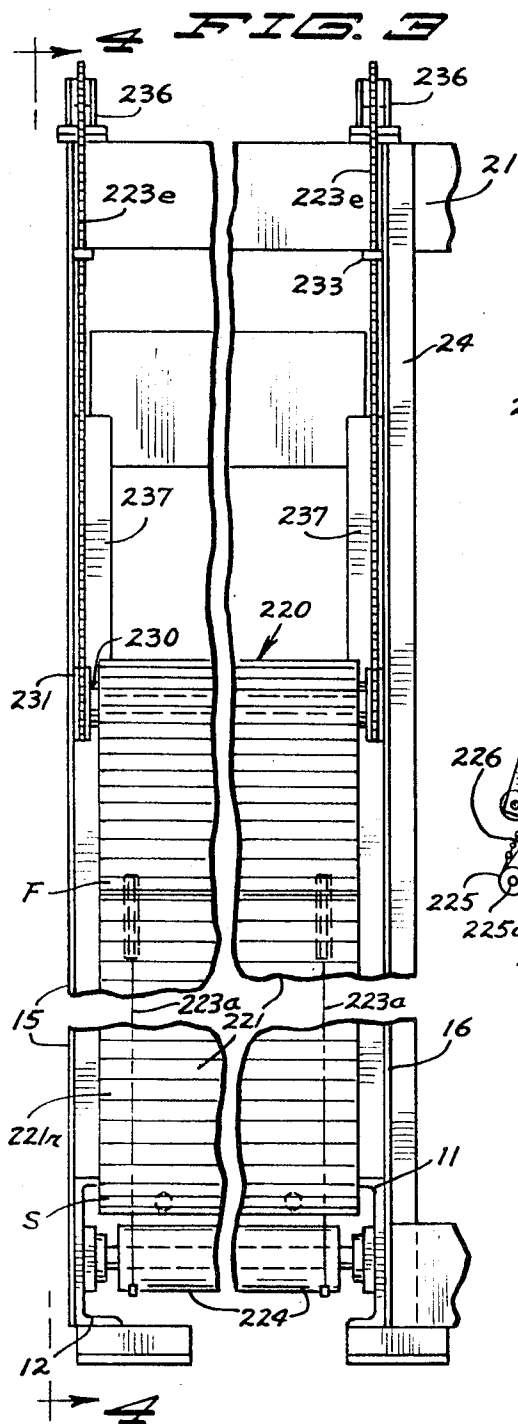
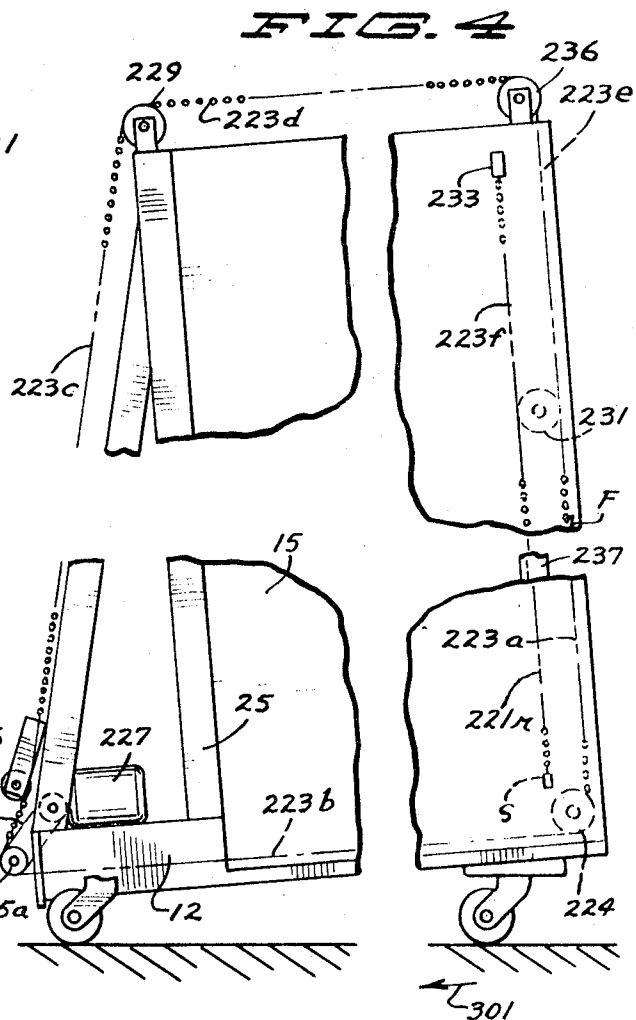
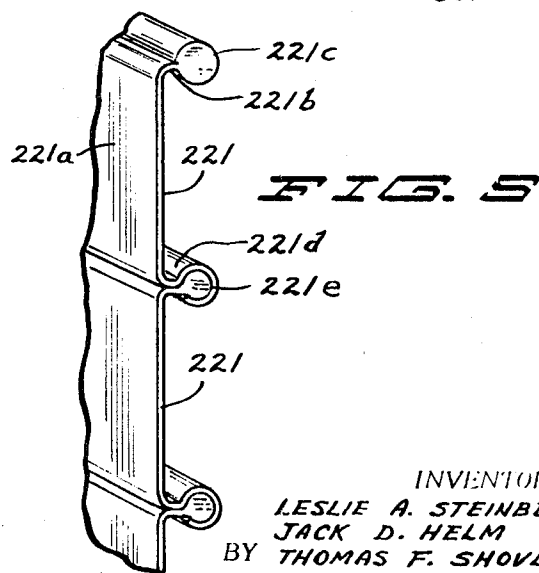
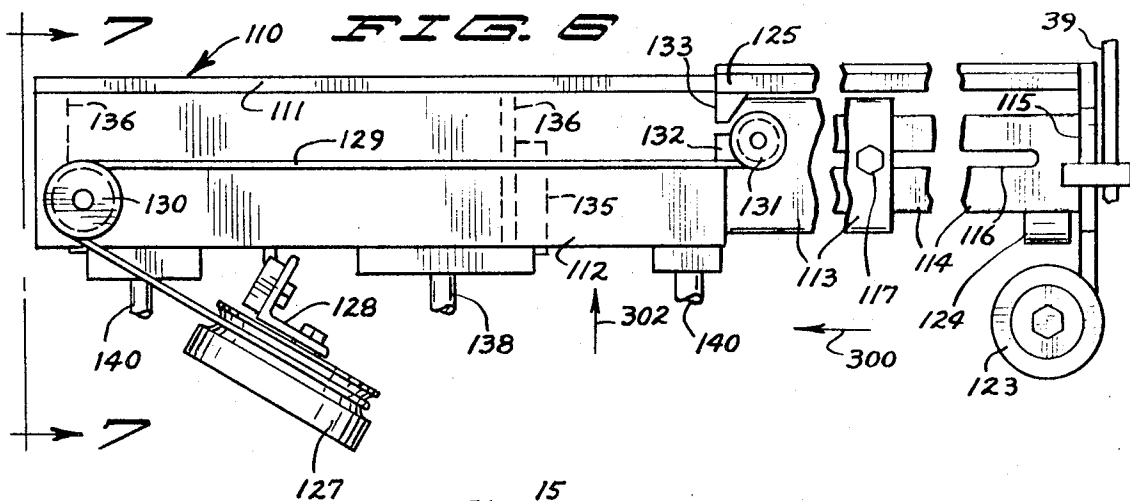
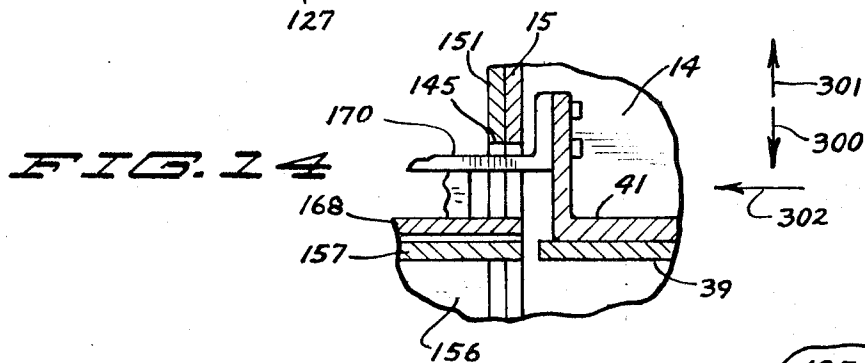
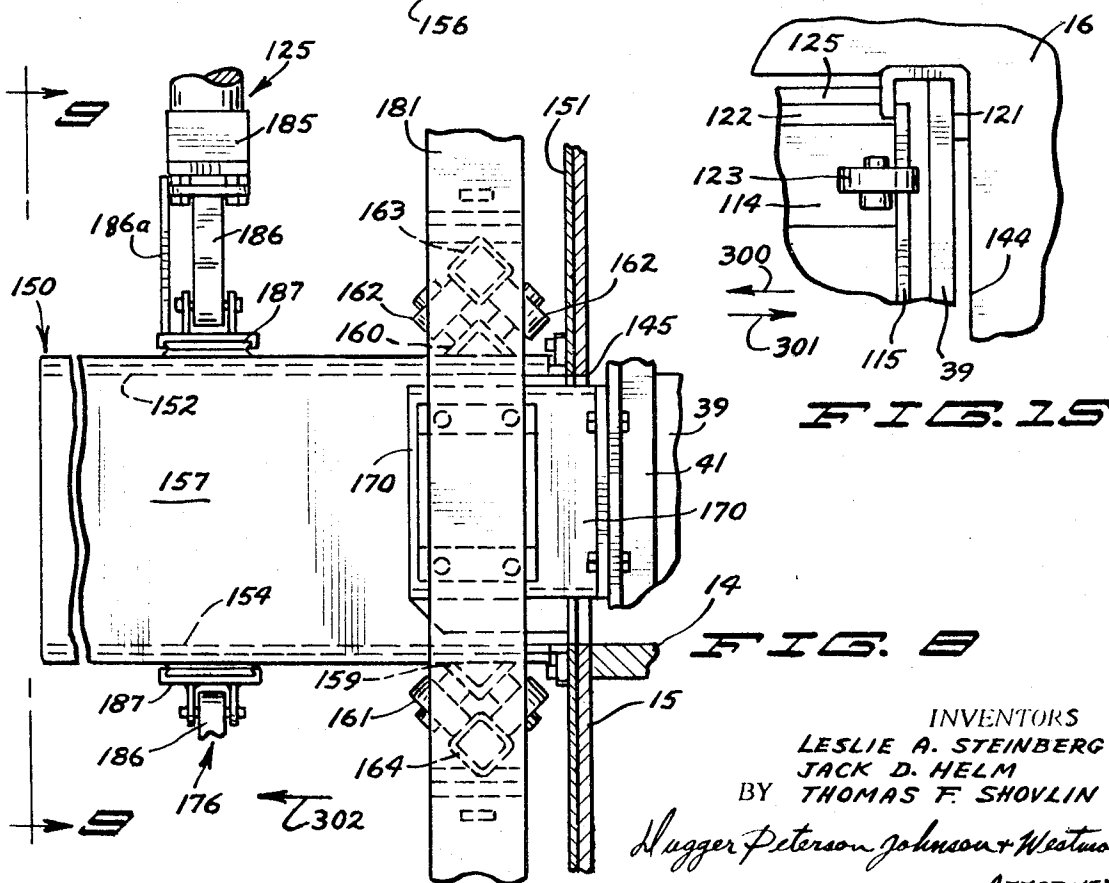


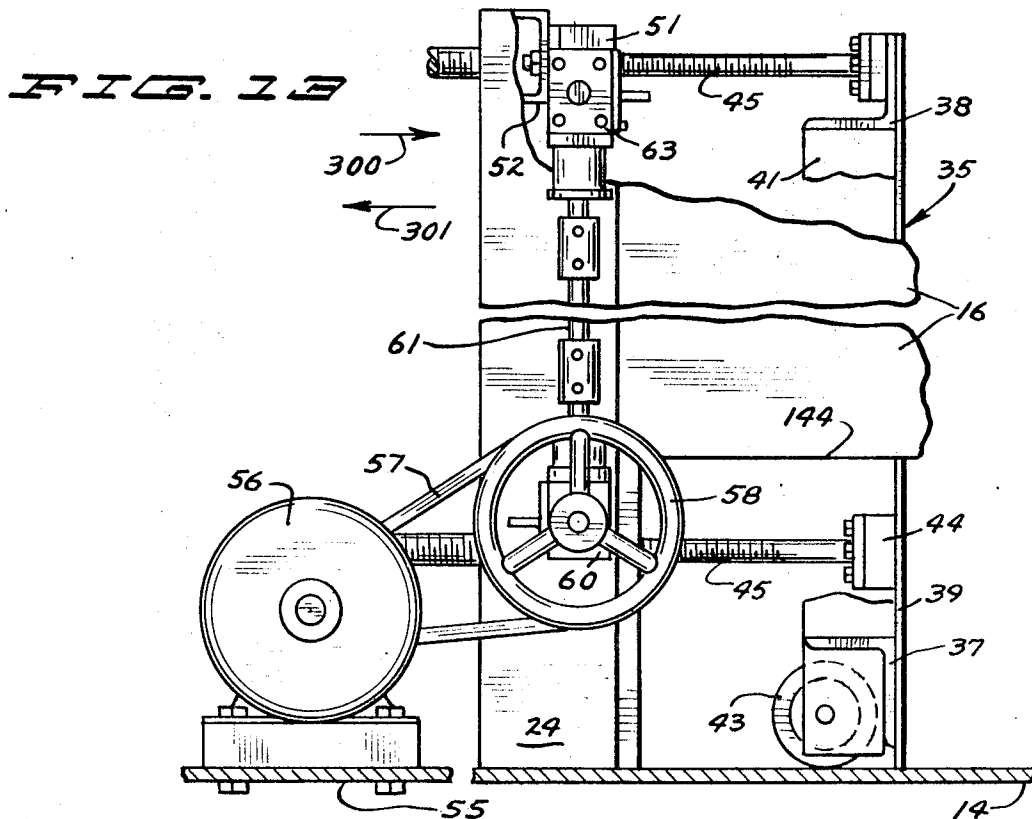
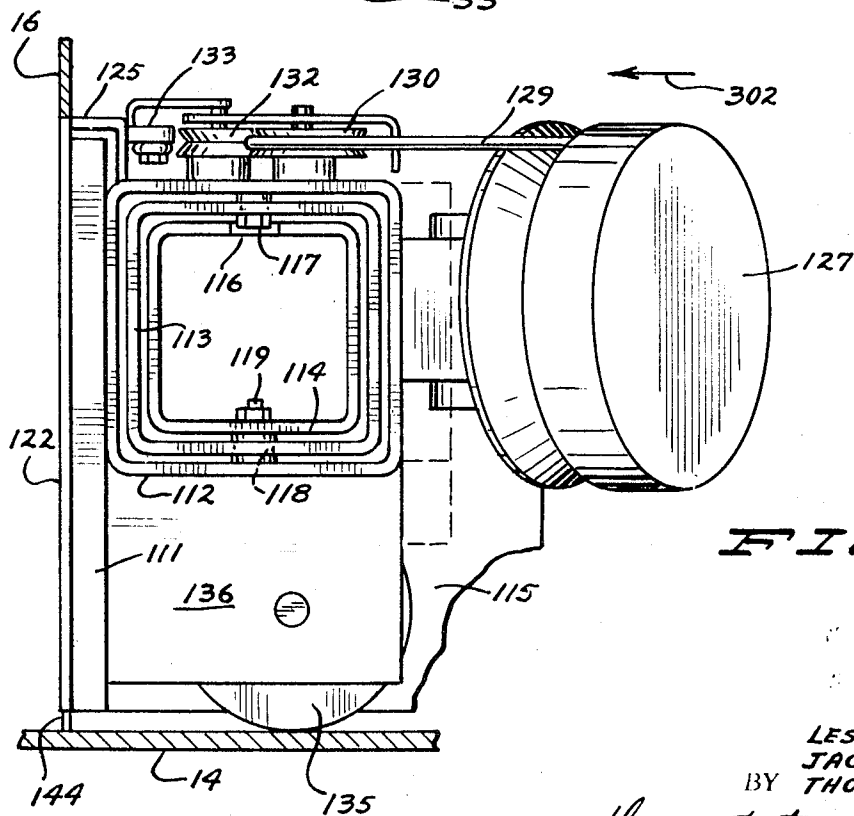
FIG. 2

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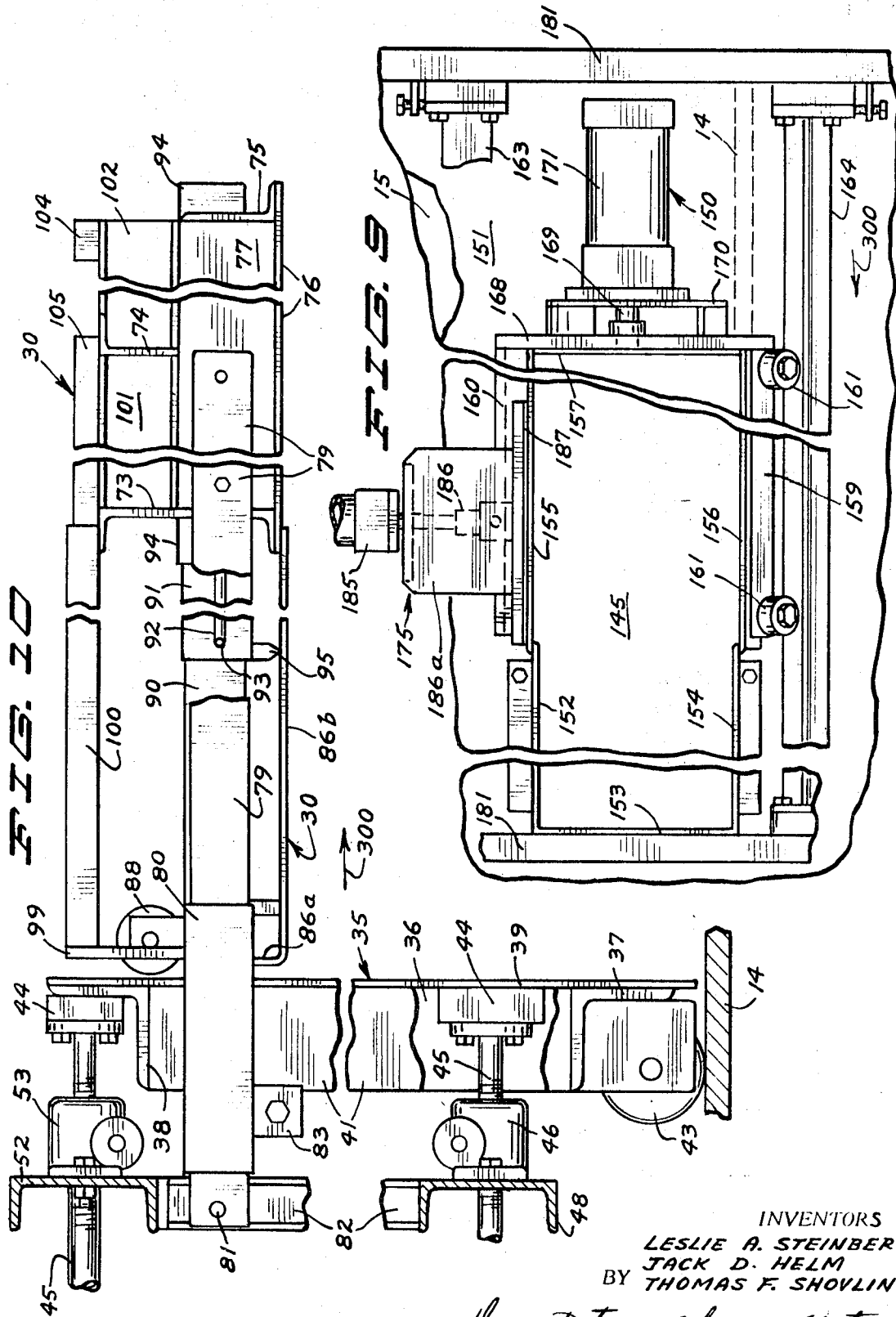


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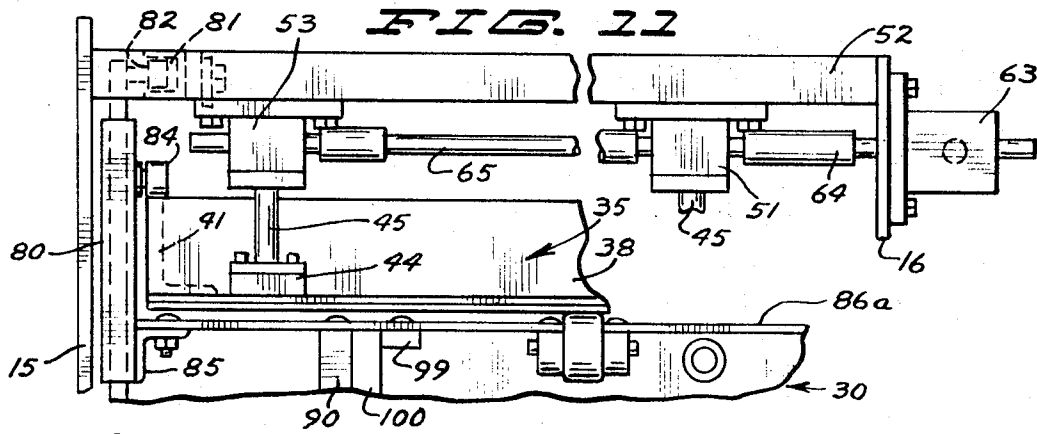
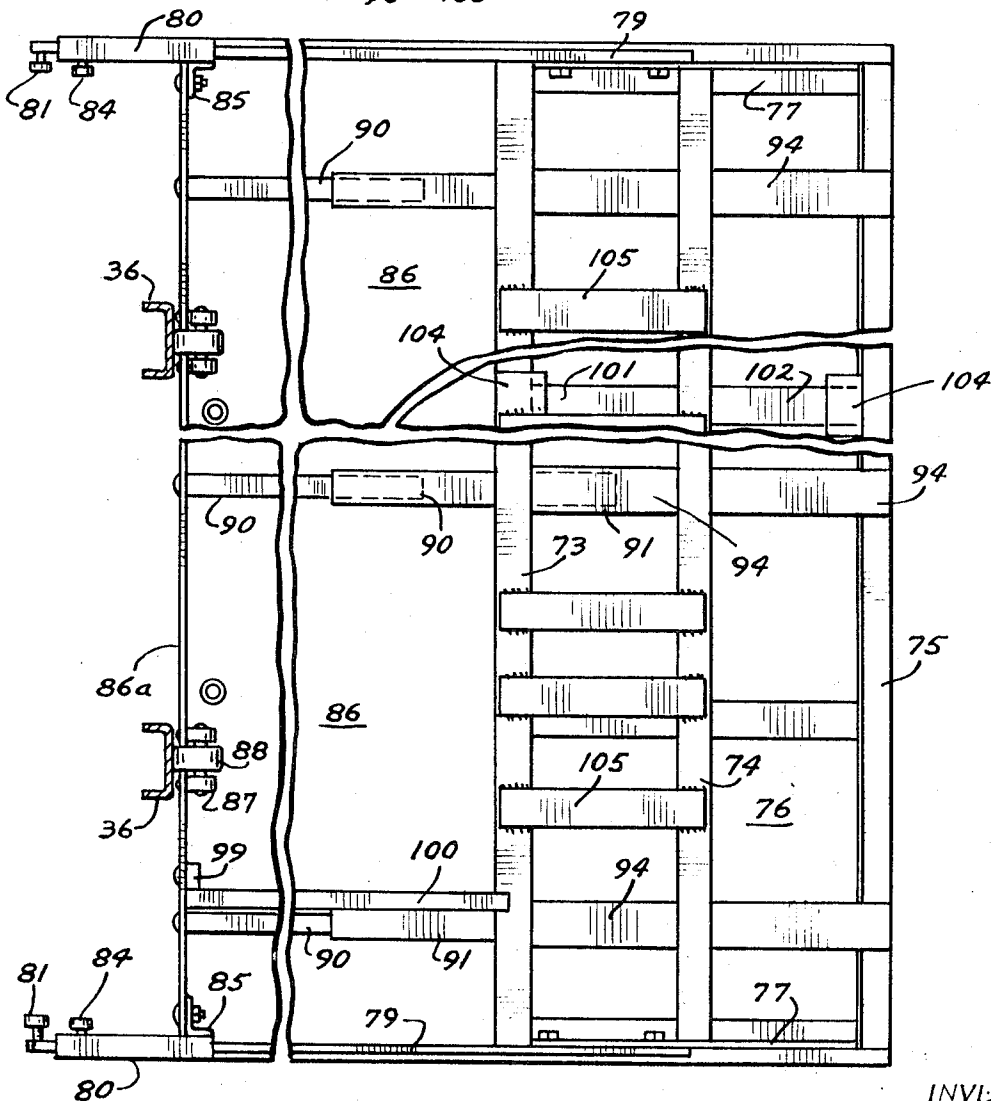


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COMPRESSION PACKER APPARATUS HAVING A DOOR

BACKGROUND OF THE INVENTION

Compression packing apparatus having a variable width loading chamber and transversely adjustable horizontal ram, spout and horizontal ram assemblies.

It is old to provide compression packers having a front opening for compressing sheet material such as insulating material. Also it is old to provide a spout assembly and a horizontal ram assembly each of which are separately manually adjustable to vary the transverse width thereof. However making each such adjustment separately takes time. Further, when it is desired to compress products that are not in sheet form, but rather are in piece form, for example blocks 12 inches long by 1 inch square, problems have been encountered in loading the material into the compression chamber. For example, for the last mentioned products, pieces fall out of the loading opening. Also there is the danger of the operator getting in the path of movement of the vertical ram assembly as it moves downwardly. In order to overcome the above-mentioned problems as well as others, this invention has been made.

SUMMARY OF THE INVENTION

Compression packing apparatus having a vertical ram assembly, a backwall assembly, a horizontal ram assembly and a door assembly that is movable to a closed position so that as portions of the door remain stationary relative the products as other portions of the door are moved to a closed position. As another feature of the invention that advantageously may be used with or without the specific door is the provision of a movable backwall assembly that as it moves, it automatically varies the transverse dimensions of the vertical ram and horizontal ram assemblies and the spout assembly.

An object of this invention is to provide a new and novel compression packer having a variable width loading chamber and spout and horizontal ram assemblies that are automatically adjusted for the width of the chamber. Another object of this invention is to provide a new and novel compression packer having a variable width loading chamber and a vertical ram assembly that is automatically adjusted for the width of the loading chamber.

A further object of this invention is to provide a new and novel compression packer having a door assembly that is movable to a closed position through increments with nonsliding motion relative the product. In furtherance of the last-mentioned object, it is a further object of this invention to provide a door assembly for first closing the lower portion of the loading opening and then successively higher portions of the loading opening. An additional object of the invention is to provide a compression packer having a selectively variable width loading chamber and a precompression assembly having compression fingers that are always moved in the width direction the same amount even though the working width of the chamber has been changed.

Although for purposes of facilitating the description of the invention, various members will be described as being vertical or upright, and various other members that extend transversely as being horizontal, it is preferred that the apparatus have its vertical members slope upwardly in a rearward direction (for example 5° to the vertical) and its transverse members slope downwardly a few degrees in a rearward direction to extend at right angles to the direction of extension of the vertical members. In this connection attention is directed to FIG. 2 wherein ground level is illustrated as sloping upwardly to the left to facilitate making the drawings even though in actuality the ground level is horizontal as shown in FIG. 4.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of the apparatus of this invention with various portions thereof broken away, said view

being generally taken along the line and in the direction of arrows 1—1 of FIG. 2 with the rams in a chamber loading position and the door assembly in a nearly fully opened position;

FIG. 2 is a view of the apparatus of this invention with various portions broken away, said view being generally taken along the line and in the direction of the arrows 2—2 of FIG. 1 to show the spout assembly and the backwall assembly in a maximum width loading chamber condition and the precompression and vertical ram assemblies in their retracted positions;

FIG. 3 is a front view of the apparatus of this invention with various portions broken away and other portions not shown, said view being generally taken along the line and in the direction of arrows 3—3 of FIG. 2 other than that the door assembly is in a partially closed position;

FIG. 4 is a left side view with various portions not shown, others broken away, and showing the door assembly drive mechanism, said view being generally taken along the line and in the direction of arrows 4—4 of FIG. 3;

FIG. 5 is a fragmentary perspective view illustrating the slats of the door assembly;

FIG. 6 is a view of the horizontal ram assembly in an expanded maximum width condition with various portions broken away;

FIG. 7 is a front view of the apparatus of FIG. 6, said view being generally taken along the line and in the direction of arrows 7—7 of FIG. 6;

FIG. 8 is a fragmentary rear view of the spout assembly of this invention, said view being generally taken along the line and in the direction of arrows 8—8 of FIG. 2;

FIG. 9 is a fragmentary side view of the spout assembly, said view being generally taken along the line and in the direction of arrows 9—9 of FIG. 8;

FIG. 10 is a left side view of the vertical ram and backwall assemblies, various portions of said assemblies being broken away and the vertical ram assembly being shown in an expanded maximum width condition;

FIG. 11 is a fragmentary plan view of the back end portion of the structure of FIG. 10;

FIG. 12 is a plan view of the vertical ram assembly and a portion of the backwall assembly, various portions being broken away;

FIG. 13 is a fragmentary view of the right side illustrating the drive structure for moving the backwall assembly from a retracted position to an expanded position wherein the compression chamber is of a substantially narrower width than it is in the backwall assembly retracted position, said view showing the backwall assembly forwardly of its fully retracted position;

FIG. 14 is a fragmentary view illustrating the connection between the backwall assembly and the spout assembly for moving the spout assembly toward its maximum width assembly as the backwall assembly is moved to its retracted position; and

FIG. 15 is a fragmentary view illustrating the connection between the backwall assembly and the horizontal ram assembly for moving the horizontal ram assembly to its maximum width position as the backwall assembly is moved to its retracted position.

For purposes of explanation it will be mentioned that the terminology loading chamber refers to the space vertically between ram plates 86b, 76 and bottom press plate 14; longitudinally between plates 15, 16; and transverse between the front surfaces of the backwall assembly 35 and the rear surfaces of the run 221r of slats of the door assembly in a closed position.

Referring now in particular to FIGS. 1 and 2 there is illustrated the compression packer apparatus of this invention that includes a frame, generally designated 10, having bottom transverse frame members 11, 12 and longitudinal frame members 13 (only one being shown) that are joined together for mounting the structure to be described. Members 11—13 mount a bottom press plate 14 having a horizontal, generally planar upper surface. Mounted by frame member 12 to extend

thereabove is a left sideplate 15 while the press plate 14 mounts a right sideplate 16 parallel to plate 15, each of plates 15 and 16 having about the same or a smaller transverse dimension than the bottom press plate. Extending to the right of frame member 11 and joined thereto is a generally horizontal framework 18, the framework mounting a pair of transversely spaced uprights 19. The upper ends of the uprights 19 mount a top transverse frame member 20, a longitudinally extending central beam 21 having one end mounted by frame member 20, its opposite end by the left sideplate 15 and a portion extended through a slot in plate 16 and welded thereto.

Also mounted by the transverse frame member 11 are a pair of transversely spaced uprights 24 having the right sideplate 16 welded thereto, the upper ends of the uprights being connected to the beam 21 by transverse frame members 23. A rear upright 25 has the plate 15 welded thereto and its lower end welded to transverse frame member 12. One longitudinal frame member 13 is joined to channels 11, 12 respectively, adjacent upright 25 and rear upright 24.

Mounted by beam 21 are a pair of cylinders 26 of longitudinally spaced piston cylinder combinations that have piston rods 27 movable extended through the beam and connected to the vertical ram assembly, generally designated 30. A plurality of guide rod devices 31 are mounted by fixed frame plates 32, the devices 31 having slidable rods 31a connected to the assembly 30. Another guide rod device 33 is mounted by the beam 21 and connected to assembly 30.

In order to vary the transverse working width of the compression chamber, there is provided a longitudinally elongated, horizontally movable backwall assembly generally designated 35 (See FIGS. 1, 2, 10, 11 and 13). The backwall assembly includes a pair of longitudinally spaced intermediate uprights 36 and a pair of end uprights 41 that at their upper ends are joined to a longitudinal angle iron 38 and at their lower ends to a longitudinal angle iron 37. Secured to the lower front sides of channels 36 and uprights 41 is a plate 39 that is about the same height as the horizontal ram assembly 110 and of a length to extend substantially the entire distance between plates 15, 16 and a short distance to the right of plate 16. The channels 36 and uprights 41 include plates that extend from plate 39 to the angle iron 38 and have front surfaces that are substantially coplanar with the front surface of plate 39. Extending between and secured to plate 39 and angle iron 38 to have their front surfaces substantially coplanar with the front surface of plate 39 are a plurality of longitudinally spaced upright bars 40, the plate 39 being extended through notches in said bars.

In order to facilitate the movement of the backwall assembly, said assembly includes longitudinally spaced wheels 43 to roll on the bottom press plate, said wheels being mounted on the bottom channel 37 so that the bottom edge of plate 39 is supported only a slight distance above the press plate. A pair of longitudinally spaced mounting members 44 that are mounted on the back side of plate 39 have the one ends of screwjack rods 45 rotatably secured thereto, one rod being drivenly extended through a screwjack drive member 46 that is mounted on the longitudinal frame member 48 which in turn is mounted by plates 15 and 16. A second jack drive member 51 is mounted on channel 52 which in turn at its opposite end is mounted by plates 15 and 16. Directly vertically beneath the last-mentioned jack member is a third jack drive member 51 (not shown) that drivingly mounts the jack rod that is secured to plate 39 by member 44. Adjacent plate 15, a fourth jack drive member 53 is mounted by channel 52 each of second and fourth jack drive members 51, 53 drivingly mounting the horizontal jack rods 45 that have their one ends rotatably secured to mounting members 44 that are bolted to angle iron 38.

In order to drive the jack drive members 46, 51, 51 and 53, a reversible motor 56 is mounted on a plate 55 that in turn is mounted on the frame (see FIG. 13). A belt 57 extends around a sheave (not shown) keyed to the shaft of the motor 56 and a pulley sheave 58 that is keyed to an input shaft of an

angle gear box 60 that is mounted on plate 16. One output shaft (not shown) of box 60 is coupled to the drive member 51 on channel 48 while the second output shaft is connected through a coupling device 61 to the angle gear box 63 that is mounted on plate 16 vertically above box 60. The output shaft of box 63 is coupled by member 64 to an input shaft of the jack drive member 51 on channel 52. Each of the jack drive members 51 has an output shaft coupled to jack drive members 46, 53 respectively, by a coupling device 65. Through the aforementioned structure, upon motor 56 rotating in one direction each of the jack shafts is rotated and horizontally moved the same amount in, for example, the direction of arrow 301 to move the backwall assembly in the same direction to expand the loading chamber, or in the direction of arrow 300 to move the backwall assembly in a direction to decrease the capacity of the loading chamber.

Referring in particular to FIGS. 10-12, the vertical ram assembly 30 includes longitudinally elongated, transversely spaced channels 73, 74 and angle iron 75, each having a lower leg secured to the press plate 76. To each of the ends of members 73-75 there is welded a transversely extended angle iron 77. To each angle iron 77 there is bolted the one end of a transversely elongated horizontal bar 79 that slidably extends through a rectangular tubular channel 80; the opposite end of each bar mounting a roller 81 to rotate about a longitudinal axis. Each roller 81 extends into a vertical, generally U-shaped channel 82 that has its opposite ends secured to channels 48 and 52.

On each channel 80 there is dependently secured a tab 83 that in turn mounts a roller 84 to rotate about a horizontal axis and bear against the back edge of the adjacent backwall assembly upright 41. To each channel 80 (forwardly of tab 83) there is welded a bracket 85 which in turn is bolted to the adjacent portions of the upright flange 86a of an extension press plate 86 that has a generally horizontal pressing surface portion 86b. Intermediate brackets 85 two sets of bars 87 are bolted to flange 86a, each set of bars extending above the flange 86a and mounting a roller 88 to bear against the forward surface of the adjacent backwall assembly channel 36. In this connection it is to be mentioned that when the backwall assembly is in its fully retracted position, the extension press plate portion 86b is of a transverse dimension that one edge is closely adjacent the backwall assembly while the opposite edge portion underlies the rearward longitudinal edge portion of the press plate 76.

In order to retain the press plate portion 86b closely adjacent the pressing surface of press plate 76, one end of a transversely elongated bar 90 is bolted to flange 86a while the opposite end of said bar is slidably extended into the transversely elongated channel 91. Channel 91 has a pair of slots 92 formed in the vertical sides thereof that extend nearly the entire transverse dimension of said channel; a pin 93 being secured to an intermediate portion of bar 90 and extended into the slots 92 to be slidable along the length of said slots. Channel 91 is slidably extended into a channel 94 which in turn is attached to members 73-75 and extended through appropriate slots in said members. The pin 93 is of an axial length to be movable into channel 94. In order to minimize binding, a tab 95 is welded to the rear end portion of channel 91 to slidably bear against the upper surface of plate portion 86b. The vertical ram assembly 30 includes four longitudinally spaced sets of members 90-95.

A bracket 99 has one end secured to flange 86a and the opposite end welded to the rearward end of transverse bar 100. The bar 100 is slidably extended over the top surface of frame members 73, 74. The I-beams 101, 102 are joined to frame member 73, 74 and 75. The guide rods 33 are attached to blocks 104 that are welded to central I-beam 102 and channel 73. There are also provided a plurality of bars 105 that have their one ends welded to channel 73 and their other ends to channel 74; each piston rod 27 having its one end attached to the bar 105 that is directly vertically therebeneath. Also, each guide rod 31a is attached to a bar 105 that is directly vertically

therebeneath. Further, a cylinder is mounted by beam 21 to have its piston rod portion abutable against bar 100 to assist cylinders 26 during the maximum pressure cycle with larger chamber sizes. Hydraulic shock devices 103a (only one shown) are mounted by frame 21 to be abutable against bars 105 on channels 73 and 74.

Referring now in particular to FIGS. 1, 6 and 7, a horizontal ram assembly, generally designated 110, will now be described. The assembly 110 includes a vertical main press plate 111 that is of approximately the same transverse dimension as the main press plate 76. Welded to the surface of rectangular plate 111 opposite end wall 15 is a transversely elongated, rectangular tubular channel 112. Slidably extended a substantial distance into channel 112 is a rectangular tubular channel 113, while slidably extended into channel 113 a substantial distance is the rectangular tubular channel 114. A vertical, longitudinally extending plate 115 is welded to the end of channel 114 opposite channel 112. A transversely elongated closed end slot 116 is provided in the top wall of channel 114; there being a bolt 117 mounted in a fixed position by the rearward end of channel 113 to slidably extend through slot 116. Similarly, a corresponding slot 118 is provided in the bottom wall of channel 113 that extends substantially the entire length of said channel 113 and a bolt 119 is fixedly mounted in the rear end portion of the bottom wall of channel 112 to slidably extend into said slot.

Welded to one edge of plate 115 to extend parallel to plate 111 in at least partial overlapping relationship thereto is a rectangular extension ram plate 122; plate 122 being of a transverse dimension to extend closely adjacent to the backwall assembly plate 39 even when the backwall assembly is fully retracted. On the opposite end portion of plate 115 there is mounted a roller 123 to rotate about a vertical axis and bear against plate 39 for retaining the vertical edge of plate 122 in slight space relationship to plate 39 when the plate 122 has been advanced (arrow 302) a short distance toward plate 15. Also mounted by plate 115 is a roller 124 to roll about the horizontal axis to roll against the press plate 14, roller 124 being on the opposite side of plate 115 from plate 39.

In order to aid in retaining plate 122 closely adjacent plate 111 as it is moved transversely relatively thereto, the upper leg of a right-angle bracket 125 has one edge welded to the upper edge portion of plate 122 and has a vertical depending leg extended down along the surface of plate 111 that is opposite plate 122. To resiliently retain plate 115 closely adjacent plate 39, a coil spring motor 127 is mounted by a bracket 128 on channel 112, the coil spring motor having a cable 129 that is resiliently urged to a retracted position. The cable 129 extends from the motor 127 and is partially reversely bent around a pulley sheave 130 that is mounted on the top forward end portion of channel 112, said cable then extending partially around a pulley sheave 131 that is rotatably mounted by a tab 132 welded to the rear end portion of channel 112 so that sheave 132 is located between plate 115 and channel 112. The terminal end of cable 129 is secured to a tab 133 that is welded to the end portion of bracket 125 that is opposite plate 115.

To support the lower edge of the rectangular ram plate 111 slightly above press plate 14, a pair of transversely spaced rollers 135 are mounted by lugs 136 to roll on plate 14. The lugs are mounted by plate 111 and channel 112. To longitudinally move the horizontal ram assembly, the piston rod 138 of a two-way-acting piston-cylinder combination having a cylinder 139 is attached to the central portion of channel 112. The cylinder is mounted by the framework 18 (see FIG. 1). To aid in maintaining the left side surface of plate 111 perpendicular to plate 39, to the opposite end portions of channel 112 there are attached the one ends of horizontal, longitudinally elongated guide rods 140, the guide rods being slidably extended into guide tubes 140a that at their remote ends are mounted by blocks 142 which are attached to the framework 18. Intermediate the guide tubes and channel 112, the guide rods extend over stabilizing gears 143 that are on the framework 18.

Provided in the wall 16 is a cutout 144 that opens to plate 14 and is of a size to have ram plates 111, 122 in their fully transversely expanded condition of FIG. 6 pass therethrough, plates 111, 122 in their longitudinally retracted position being substantially parallel with wall 16 and of a construction to substantially close cutout 144 forwardly of plate 39.

In order to automatically adjust the transverse working width of the horizontal ram plates when the arm plates are in the retracted position, a generally U-shaped bracket 121 has one leg attached to the back side of the right-hand end portion of plate 39 (see FIG. 15), a web portion extending transversely over plates 115, 39 and a depending leg extended along the front surface of plate 115 but not attached thereto. Thus bracket 121 does not interfere with the longitudinal movement of plate 115 but when plate 115 is in its retracted position and the backwall assembly is moved in the direction of arrow 301, plate 115 is moved in the same direction the same distance and thereby moves plate 122 and channel 114 relative to plate 111 the same distance.

Longitudinally opposite cutout 144, wall 15 is provided with a corresponding size cutout 145 to have the compressed product pass therethrough and through the spout assembly generally designated 150. Referring to FIGS. 1, 2, 9 and 10, the spout assembly 150 will now be described. The spout assembly 150 includes a stationary first spout section having a top wall 152, a bottom wall 154 and a sidewall 153 that are joined together at adjacent edges, walls 152, 154 having flanges that are welded to plate 151 that in turn is fixedly secured to the sideplates 15. Plate 151 also has a cutout 145 opening to that of plate 115. The transversely movable second spout section includes a top wall 155, a bottom wall 156 and a sidewall 157 that are joined together at adjacent edges, the second section being mounted relative the first spout section to form a spout that is generally rectangular in vertical transverse cross section.

In order to mount the second spout section for movement a transversely extending bottom angle bracket 159 extends adjacent and parallel to the bottom wall 156 to have its apex portion point downwardly while a corresponding angle bracket 160 is extended adjacent and parallel to wall 155 to have its apex portion extend upwardly. Bracket 159 mounts a first and a second pair of transversely spaced rollers 161 to rotate about an axis generally perpendicular to each of the respective legs of said brackets. Likewise, four rollers 162 are mounted on the bracket 160. Two of the rollers 162 ride on one leg of the rectangular tubular channel 163 while the other two rollers ride on a second leg that extends at right angles to the first-mentioned leg. Similarly, two rollers 161 ride on one leg of a tubular channel 164 while two other rollers ride on a second leg of channel 164. Through the provision of members 159-164, the spout section 155-157 is held against any substantial longitudinal movement, and at the same time is supported for transverse movement.

In order to transversely move the second spout section relative the first section to partially collapse the spout to facilitate placing a bag thereon, a vertical, longitudinally extending plate 168 is welded to the rear edges of brackets 159, 160. A piston rod 169 of a piston cylinder combination 169, 171 has its one end attached to the central portion of wall 157, said piston rod slidably extending through an appropriate aperture provided in plate 168 and through a cylinder mounting member 170 that is mounted on plate 168. Mounting member 170 mounts a cylinder 171 of the piston cylinder combination 169, 171. Since the cylinder is stationarily mounted relative to brackets 159, 160, as the piston rod moves to an expanded condition, walls 155-157 are translated to be located more closely adjacent end wall 153. This movement of walls 155-157 is relative to brackets 159, 160. Spout members 152-157 in the maximum transverse width condition open through the aperture 145 provided in end wall 15 and plate 151 to the loading chamber. The opening of the spout is of a size that the horizontal ram in its maximum transverse width condition may be moved into and through the spout.

In order to move the second spout section with the backwall assembly, member 170 (see FIG. 14) has one leg bolted to the adjacent backwall assembly upright 41 and portions attached to plate 168. As a result, as the backwall assembly moves members 155-161, 168, 171 moves a corresponding amount with the rollers rolling over channels 164, 163.

In order to retain a bag on the spout, there are provided a pair of transversely spaced top bag clamp assemblies, respectively, generally designated 174, 175; and a pair of bottom bag clamp assemblies, respectively, generally designated 176, 177. Each of the bag clamp assemblies 174, 175 includes a mounting member 178 that is slidably adjustable along a transversely elongated rail 179. The rail 179 at its opposite end portions is secured to the adjacent end portion of channels 180, the opposite ends of the channels being attached to the plate 15, and upright 25, respectively. Also attached to the opposite end portions of channels 180 is an upper end of an upright 181, each lower end of each upright 181 being secured to a frame member 182, whereby the uprights are substantially more closely adjacent plate 15 than rail 179. The one ends of channels 163, 164 are mounted by one upright 181 while the opposite ends of said rails are mounted on the other upright 181.

Each of the top bag clamp assemblies also includes a two-way-acting piston-cylinder combination having a cylinder 185 that is dependently mounted by the respective mounting member 178, and a piston rod 186 that dependently mounts a bag clamp member for clamping one wall of a bag against the top wall of the spout. The bag clamp member of assembly 175 is designated 187 while that of assembly 174 is designated 188. The lower edge of a guide plate 186a is welded to a bag clamp member to slidably extend along one side of the cylinder 185.

Bottom bag clamp assemblies 176, 177 are slidably adjustable along the length of rail 190 to be positionable directly beneath the bag clamp assemblies 175, 174, respectively. Rail 190 at its opposite end is mounted on the one end portions of bars 191, the other end of said bars being mounted by the frame. The bag clamp assembly 176 is of the same construction as bag clamp assembly 175 other than for its mounting member 193 which slidably mounts assembly 176 on rail 190. Further, bag clamp assembly 177 is of the same construction as assembly 174 other than for its mounting member 193 which slidably mounts the assembly 177 on rail 190. Assemblies 176, 177 have their bag clamp members 187, 188 movable for clamping a bag against the bottom walls 156, 154, respectively, of the spout.

In order to close the loading chamber opening, there is provided a door assembly, generally designated 220 (see in particular FIGS. 1, 3-5). The door assembly includes the door made up of a plurality of longitudinally elongated slats 221, each slat having a generally planar surface portion 221a that at one end has a flange 221b integrally joined therewith to extend outwardly of said planar surface portion. The edge of flange 221b that is remote from portion 221a has a cylindrical portion 221c integrally joined therewith. The opposite edge of portion 221a is integrally joined to one edge of a flange 221d that extends away from portion 221a in generally the same direction as portion 221b. To the opposite edge of portion 221d there is integrally joined a slotted tubular portion 221e, the slotted portion 221e having a flange 221b of the adjacent slat 221 extended therethrough whereby tubular portion 221e mounts the cylindrical portion 221c of the adjacent slat for limited pivotal movement.

One terminal slat F of the slatted door at opposite longitudinal edge portions thereof mounts the one ends of runs 223a of chains 223 to depend therefrom when the door is partially closed as shown in FIGS. 3 and 4. Runs 223a extend downwardly to longitudinal roller 224 that has its opposite ends rotatably mounted by transverse frame members 11, 12. Rearwardly of roller 224, the chains continue along runs 223b to sprockets (not shown) keyed to shaft 225a to be integrally joined to the one end of runs 223c that extend upwardly. The shaft 225a at its opposite ends is rotatably mounted by chan-

nels 11, 12, a driven sprocket 225 being keyed to shaft 225a. Sprocket 225 is driven by a chain 226 that in turn is driven by the drive sprocket of a reducer motor combination 227 that is mounted by a frame member 228 (see FIG. 2). The upper ends of runs 223c are integrally joined to the one ends of the top runs 223d where the chains extend over sprockets 229 that are mounted on the upper ends of frame members 24, 25. The opposite ends of runs 223d are integrally joined to the one ends of runs 223e at the location that the chains pass over sprockets 236, sprockets 236 being mounted on the upper forward end portion of plates 15, 16 respectively. The opposite ends of runs 223e are integrally joined to the lower ends of runs 223f at the locations that the chains extend around the sprockets 231, sprockets 231 being rotatably mounted on the opposite ends of the longitudinally elongated roller 230. Thus the weight of roller 230 is solely supported by runs 223e, 223f. The upper ends of runs 223f that constitute a second terminal end of the chain are secured to brackets 233 which in turn are mounted on the upper forward edge portions of plates 15, 16, respectively.

The longitudinal terminal slat S that is at the end of the door opposite slat F is bolted to the front longitudinally extending edge portion of the bottom press plate. A sufficient number of slats are provided that even when the door is in a fully closed position the slats extend around roller 230 and a few depend therefrom; the roller 230 supporting the slats so that one back run 221r thereof has the generally planar surface portions 221a thereof substantially perpendicular to plate 14, and parallel to and above the front edge of the bottom press plate. Guide members 237 are secured to walls 15, 16 to limit any movement of the slats into the loading chamber and to insure the slats are out of the path of travel of the vertical ram. Sufficient clearance is provided between roller 224 and the bottom horizontal legs of channels 11, 12 so that when the door is in an open position, the slats extending rearwardly of roller 224 will be supported by or just above the lower horizontal legs of said channels. Further, when the door is in a closed position, the rearward run 221r of slats have their back surface portions located slightly more closely adjacent the edge of cutouts 145 from the backwall assembly and the back surface of plate 153 from said assembly. The front edge of horizontal ram plate 111 as the plate is moved longitudinally is closely adjacent and just rearwardly of the back surface of the slat portions 221 of the back run that are at the same elevation as said plate. Additionally the path of movement of the front edge of vertical ram plate is just rearwardly of the back surfaces of the slats of run 221r.

Mounted on the frame is a precompression assembly, generally designated 240 (see FIG. 2). Since the precompression assembly is generally of a conventional construction, it will only be briefly described. The assembly 240 includes a piston-cylinder combination having a vertical cylinder 241 mounted by a frame member 243 and a piston rod 242 slidably extended through an appropriate aperture in frame member 243. The frame member 243 is mounted on the upper ends of channels 24, 25 to extend rearwardly thereof. The piston rod is attached to a vertical movable subframe 244 that at each side thereof includes a transversely extending top track 244a, second tracks 244b mounted vertically beneath and spaced from track 244a, and braces 244c that at one end are attached to tracks 244b. The tracks 244a, 244b mount the opposite end portions of a longitudinal carriage 245 that has upper and lower wheels that engage the adjacent track. The carriage mounts a plurality of longitudinally spaced, rigid fingers 246 to extend forwardly thereof, the fingers being spaced so as to be extendable between the upright members of the backwall assembly such as indicated in FIG. 1. Rollers 248 are mounted by the subframe to have the finers extend therebetween to aid in retaining the fingers substantially parallel to the bottom press plate. The fingers are movable between a position that their forward ends are just rearwardly of the front surface of the backwall assembly in a fully retracted position and a position that the fingers are closely adjacent the back surface of

the door in a closed position. Further the fingers are mounted by the carriage and subframe for vertical movement between a position a short distance vertically beneath the vertical ram assembly in its maximum elevated position and a lower position just above the top edge of plate 39. Rollers 249 are mounted by forward end portions of the subframe to ride in vertical tracks (not shown) that are secured to frame members 24, 25, respectively, whereby the subframe and carriage 245 support the fingers to extend generally perpendicular to the front surfaces of the backwall assembly.

Driven chains 250 are mounted by transversely spaced sprockets 251 on tracks 244b; two sprockets 251 being keyed to a shaft (not shown) which also mounts a drive sprocket that is driven through a drive connection (not shown) to a motor 252 on the subframe. The carriage is connected to the upper runs of the chains 250 to be reciprocated between a position the finger front end portions are rearwardly of the front surface of the backwall assembly and a position closely adjacent the path of movement of the door for closing the loading chamber.

The construction of the apparatus of this invention having been described, the use thereof will now be set forth. In describing the use of the invention, it will be assumed that the backwall assembly 35 is in its fully retracted position of FIG. 2, that the extension portion of the vertical ram has its rollers 88 abutting against the backwall assembly whereby the vertical ram assembly is in its maximum width position, and that the spout assembly is in its maximum width position. Further, it will be assumed that the extension portion of the horizontal ram assembly is in its maximum width position wherein the plate 115 is either abutting against or at least partially transversely opposite and closely adjacent plate 39.

Now the reversible motor 56 is actuated to rotate in an appropriate direction to through its drive connections to the screwjack drive members 46, 51, 51, 53, rotate the screw shafts 45 to move the backwall assembly 35 forwardly in the direction of the arrow 300. This movement of the backwall assembly forces the rollers 88 to move in the same direction and thereby forces plate 86 to move the same amount. The movement of plate 86 moves channels 80 along bars 79 and telescopes bars 90 further into tubular channels 91. In the event the backwall assembly is moved sufficiently that the pins 93 abuts against the forward ends of slots 92, then channels 91 are also moved in the same direction to be further telescoped into channels 94. Further, the bar 100 slides over the channel 73. As a result the transverse working width of plates 86b, 76 is decreased.

Additionally, the movement of the backwall assembly in the direction of the arrow 300 results in plate 39 pushing against plate 115 (or roller 123) whereby channel 114 is further telescoped into channel 113. This resulting movement of the extension horizontal press plate 122 draws the end of the cable attached to tab 133 in the direction of arrow 300 whereupon the cable is unwound from the spring motor and the spring motor is more tightly wound. In the event the movement of the backwall assembly is sufficient that pin 117 abuts against the front end of slot 116, then further movement of channel 114 results in channel 113 being further moved the same amount into channel 112.

Additionally, the movement of the backwall assembly in the direction of arrow 300 through the connection of member 170 to plate 168 and upright 41 moves the spout section 155-157 and members 158-161 and 168-171 in the same direction. At the time the assemblies 30, 110 and 150 are in their adjusted positions, through appropriate controls (not shown), air under pressure is applied to one end of cylinder 171 to move the piston rod 169 in a forward direction. This results in the spout section 155-157 moving in the direction of the arrow 300 to partially collapse the spout whereupon the bag may be readily placed over the spout sections 152-157. The exhausting of the air from the cylinder 171 and through a spring return (not shown) of the one-way-acting cylinder combination 169, 171 moves the spout section 155-157 in the direction opposite

arrow 300 whereby the spout sections 152-157 fill the mouth of the bag. Assuming that the bag clamp assemblies 174-177 are in their appropriate transverse positions, air is applied to cylinders 185 to move the bag clamp jaws 188, 187 to clamp the bag walls against the adjacent spout walls 152, 154 and 155, 156 respectively.

Now it will be further assumed that the precompression fingers are in their elevated retracted position of FIG. 1; and that the door assembly is in its fully open position. At this time the terminal slat F will be located between the rear portions of channels 11, 12, and that the roller 230 is near the level of the bottom press plate 14. Through appropriate controls (not shown) the reversible motor 227 is actuated so that the chains 223 along runs 223e are moved in an upward direction to move the roller 230 in the same direction. As the roller 230 moves upwardly, it rotates. As a result, for example, the second slat attached to the first slat S is caused to pivot about the cylinder 221c of slat S; the only vertical component of movement of the second slat being that resulting from such pivotal movement. This likewise occurs for each succeeding slat as the roller moves upwardly. As a result, the slats are not slid past the product in contact with the product, i.e. do not have motion relative to the product in contact with the product other than for moving inwardly toward the product which would exert a compressive force against adjacent portion of the product. After the roller 230 has been moved up, for example a few inches, a motor 227 is stopped and thereupon product is loaded into the loading chamber until the level of the product in the chamber is about the same as the highest slat. Then, the motor 227 is again actuated to elevate the roller 230 another increment. This sequence of action is continued until the chamber is fully loaded. As a result of providing the slatted-type door, the operator, if the product is manually placed in the loading chamber, only has to lift the product a slightly higher distance than roller 230. At the same time the slatted-type door will prevent the product from falling out of the chamber, even if it is of a nature of relatively small pieces. Further, there is provided an interlock in the controls (not shown) that will prevent the actuation of the precompression finger assembly and the vertical ram assembly until the time the door assembly is in its fully closed position to prevent injury to the parties loading product.

With the door assembly in its fully closed position, the motor 252 is actuated to drive chains 250 and thereby carriage 245 to move the front ends of fingers 246 closely adjacent the door. Now the precompression cylinder 241 has air applied to its upper end whereby the piston rod 242 force the subframe downwardly, and thereby the fingers 246 downwardly to compress the product in the chamber and retain the fingers in their extended, lower position. Thereafter, motor 227 is caused to rotate in the opposite direction to move the runs 223a, roller 230 and slat F downwardly and rearwardly along runs 223b and allow runs 223e moving downwardly until the upper portion of roller 230 is about at the level or slightly above the level of the precompression fingers. Now the motor is stopped and thereafter product is loaded into the chamber on top of the precompression fingers. In successive steps, the motor 227 is again actuated to drive the chains to raise the roller 230 and thereby moving the slats the desired increments for partially closing the loading chamber opening; this being continued until the chamber is filled and the chamber opening is closed.

Motor 252 is actuated to cause the precompression fingers 246 to move to their retracted position (arrow 301) and thereafter the precompression cylinder has air under pressure applied to its lower end to raise the subframe assembly. Now air is applied to the cylinders 26 to move the vertical ram assembly downwardly until the lower surfaces of plates 86b, 76 are at substantially the same elevation as the upper edges of the spout assembly and horizontal ram assembly openings in plate 15 and 16. Thereafter, air is applied to the cylinder 139 to move the horizontal ram plates toward (arrow 302) and into the spout to force the compressed product through the

spout and into the bag. If desired, the stroke of the horizontal ram may be sufficient to force the product into the bag and thereafter the bag off of the spout.

Now air is applied to the opposite end of the horizontal ram cylinder 139 to retract the horizontal ram assembly to its datum position, to the cylinders 26 to retract the vertical ram assembly to its datum position of FIG. 2, and power applied to motor 227 to open the door.

When it is subsequently desired to widen the working width of the loading chamber, the motor 56 is rotated in appropriate direction to rotatably translate the jackscrews 45 in the direction of arrow 301 which results in the backwall assembly moving in the direction of arrow 301. As the backwall assembly moves in this direction, frame members 41 in abutting against rollers 84 move the channels 80 in the same direction. The movement of the channels 80 pulls the extension press plate 86, bars 90 and 100 in the same direction. Further, the pins 93 move away from the forward end of the slots 92 and upon bearing against the rearward end of the slots, will move channels 91 in the same direction.

The retracting movement of the backwall assembly also moves the bracket 121 on the plate 39 to move plate 115 in the direction of arrows 301. Further, the spring motor through cable 129 aids in moving plate 122 in a rearward direction. As the channel 114 is moved rearwardly, pin 117 engages the forward end of the slot, this resulting in channel 113 being moved in the rearward direction.

The spout assembly bracket 171 also is moved by the backwall assembly in a rearward direction (arrow 301) whereby spout portions 155-161 and 168-171 are translated in a rearward direction. Thus, as may be seen from the above description, translating the rear wall assembly in either a forward or rearward direction results in each of the spout assemblies, horizontal ram assembly (in a longitudinally retracted position) and vertical ram assembly having their extension portions moved a corresponding amount in the same direction. Also no adjustment has to be made for the amount of transverse movement of the precompression fingers even through the transverse width of the loading chamber has been changed.

What is claimed is:

1. Compression packer apparatus having a frame, first means mounted on the frame for forming a longitudinally elongated loading chamber having a vertical loading opening and ram means mounted by the first means for movement relative thereto for exerting a pressing force against product in the loading chamber, the improvement comprising a door assembly mounted on the first means for progressively closing selected vertical increments of the loading chamber opening.

2. The apparatus of claim 1 further characterized in that the door assembly comprises several interconnected longitudinally extending first door sections each having a first edge portion, a main body portion joined to the first edge portion and second means joined to the main body portion remote from the first edge portion for movably connecting the main body portion to the first edge portion of the adjacent first door section, and a first terminal door section fixedly mounted on the first means and mounting one of the first door sections that is connected to only one of the other first door sections, and third means mounted on the first means for progressively moving the first door sections one after the other into a loading chamber closing position.

3. The apparatus of claim 2 further characterized in that the door section first edge portion comprises a longitudinally elongated cylindrical portion and that the second means comprises a longitudinally elongated slotted flange portion for mounting the cylindrical portion of the adjacent first door section for limited pivotal movement about a horizontal axis.

4. The apparatus of claim 2 further characterized in that the first means comprises a bottom press plate, a first sidewall, a second sidewall substantially parallel to the first sidewall and having a ram opening adjacent the bottom press plate, a backwall assembly and means for mounting the backwall as-

sembly on the frame and selectively moving the backwall assembly transversely a limited amount to vary the effective transverse width of the loading chamber, that said ram means comprises a horizontal ram assembly having a main ram plate extending transversely adjacent the loading chamber opening when the ram means is in a datum position, an extension member extending transversely adjacent the main ram plate, fourth means for mounting the extension member on the main plate to move longitudinally therewith and transversely a limited amount relative thereto, a piston cylinder combination mounted on the frame, extensible into the ram opening and connected to one of the main ram plate and the fourth means for selectively moving the main ram plate longitudinally, and means mounted on the backwall assembly for moving the extension member transversely with and substantially the same distance as the backwall assembly when said backwall assembly moves transversely.

5. The apparatus of claim 2 further characterized in that the first means comprises a bottom press plate, a backwall assembly transversely spaced from the loading chamber opening, means for mounting the backwall assembly on the frame for selected transverse movement away from and toward the loading chamber opening to vary the effective width of the loading chamber.

6. The apparatus of claim 5 further characterized in that said ram means comprises a vertical ram having a main horizontal ram plate extending transversely adjacent the loading chamber opening, piston cylinder means mounted on the frame and connected to the main ram plate for moving it vertically, a ram extension plate extending transversely between the main ram plate and the backwall assembly, third means for mounting the extension plate on the main ram plate to move the extension plate vertically with the main ram plate and permit the extension plate being moved transversely a limited amount relative to the main plate and fourth means connected to at least one of the third means and the extension plate for moving the extension plate transversely substantially the distance as the backwall assembly as the backwall assembly moves transversely.

7. The apparatus of claim 2 further characterized in that the first means includes a bottom press plate, the terminal door section being fixedly attached to the bottom press plate.

8. The apparatus of claim 7 further characterized in that third means comprises a longitudinally elongated first roller having first door sections extended thereover and depending therefrom on the side of the roller transversely opposite from the terminal door section and fourth means mounted on the frame for moving the roller vertically a select vertical increment for progressively moving the first door sections to a loading chamber closing position as the roller moves vertically upwardly.

9. The apparatus of claim 8 further characterized in that one of the first door sections includes a second terminal door section that is remote from the first door terminal section, and that the fourth means comprises a first and a second sprocket respectively mounted at the longitudinal end portions of the roller, a pair of chains each having a first terminal chain end mounted on the second terminal door section, a second terminal end portion mounted on the first means vertically above the first terminal door section adjacent the upper portion of the first means, a first end portion joined integrally to the second terminal end portion and integrally joined portions extending downwardly from the second terminal end portion, thence reversely bent around the first and second sprockets respectively, next upwardly to a higher elevation than the second terminal chain end, thereafter downwardly to a lower elevation than the first terminal door section and subsequently extending to the first terminal chain end and joined thereto and fifth means for mounting the chain portions and selectively driving the chains to move the door sections.

10. The apparatus of claim 8 further characterized in that the bottom press plate has a front edge adjacent the loading chamber opening and that the fifth means includes a longitu-

dinally elongated second roller mounted on the frame at a lower elevation than the press plate front edge and adjacent thereto to have portions of the claims extend at least partially therearound during at least part of the movement of the first door sections to a loading chamber closed position.

11. The apparatus of claim 2 further characterized in that the first means comprises a bottom press plate, a first sidewall having a spout opening adjacent the bottom press plate, a second sidewall parallel to the first sidewall and a ram opening adjacent the bottom press plate and longitudinally aligned with the spout opening, a backwall assembly extending longitudinally between said sidewalls and fourth means mounted on the frame for mounting the backwall assembly for limited transverse movement, that said ram means comprises a transversely adjustable horizontal ram, fifth means mounted on the frame and extensible through the ram opening for moving the ram longitudinally from adjacent the second sidewall to adjacent the spout opening for pushing product through the spout opening, and that there is provided a spout assembly, said spout assembly including a spout opening to the spout opening and having a first spout section fixedly mounted on the first wall to be located transversely closely adjacent the loading chamber opening, a second spout section cooperating with the first spout section, sixth means for mounting second spout section for limited transverse movement and seventh means connected to at least one of the sixth means and the second spout section and connected to the backwall assembly for automatically transversely moving the second spout section with the back assembly in the same direction and substantially the same amount to adjust the transverse width of the spout assembly.

12. The apparatus of claim 11 further characterized in that the ram comprises a main ram plate, an extensive ram plate extending transversely between the main ram plate and the backwall assembly, eighth means for connecting the extension plate to the main ram plate to move longitudinally with the main ram plate and permit limited transverse movement relative thereto, and means connected to the backwall assembly for moving the extension plate and eighth means transversely further away from the loading chamber opening when the ram is adjacent the second sidewall and the backwall assembly is moved transversely away from the loading chamber opening, the fifth means being connected to at least one of the main ram plates and the eighth means for moving the ram longitudinally.

13. The apparatus of claim 11 further characterized in that the sixth means includes longitudinal tracks, means for mounting the tracks on at least one of the first sidewalls and the frame, and eighth means connected to the second spout section for mounting the second spout section for movement on the tracks.

14. The apparatus of claim 13 further characterized in that the eighth means includes a piston-cylinder combination having a piston rod connected to the ground to the second spout section for moving the second spout section to partially collapse the spout assembly and a cylinder, ninth means transversely movable on the tracks and mounting the cylinder to move transversely, and means for connecting the ninth means to the backwall assembly to move therewith.

15. The apparatus of claim 11 further characterized in that the first means includes a vertical ram assembly having a main first press plate, an extension second press plate extending between the first press plate and the backwall assembly, eighth means for mounting the second press plate for vertical movement with the first press plate and limited transverse movement relative thereto, the eighth means including means for automatically transversely moving the second press plate relative the first press plate in the same direction as the backwall assembly as the backwall assembly is moved, and piston cylinder means mounted on the frame and connected to the first press plate for vertically moving the first press plate toward and away from the bottom press plate.

16. The apparatus of claim 15 further characterized in that the eighth means includes a transversely extending tubular channel fixedly attached to the first press plate, means telescopically extended into said channel and fixedly attached to the second press plate remote from said channel and means for retaining the second press plate closely adjacent the backwall assembly.

17. The apparatus of claim 15 further characterized in that the backwall assembly has a vertical, longitudinally extending plate adjacent the bottom press plate, a plurality of longitudinally spaced uprights secured to the last-mentioned plate, that there is provided a precompression assembly mounted on the frame and having transversely movable precompression fingers extendable between said uprights to a transverse position closely adjacent the door assembly in a loading chamber closed position, and that said horizontal ram includes a main third ram plate, an extension fourth ram plate extending between the third plate and the backwall assembly and means for mounting the fourth plate on the third plate to move longitudinally therewith, permit limited transverse movement of the fourth plate relative the third plate and resiliently retain the fourth plate transversely adjacent the backwall assembly.

18. Compression packer apparatus comprising a frame, a longitudinally elongated bottom press plate, a first and a second sidewall, a transversely movable backwall assembly, said bottom press plate, sidewalls and backwall assembly being mounted on the frame to form a loading chamber having a vertical loading chamber opening, drive means mounted on the frame for transversely moving said backwall assembly between a retracted position and a position substantially more closely adjacent the loading chamber opening, a door assembly mounted on the frame for selectively closing the loading chamber opening, said door assembly including a plurality of longitudinally elongated first door sections having adjacent lateral edge portions pivotally connected and including a first and a second terminal first door section, first means for mounting said door sections on the frame and selectively moving door sections between loading chamber opening opened and closed positions, each of the sidewalls having an opening opening to the bottom press plate and extending transversely from adjacent the backwall assembly in its retracted position to adjacent the door sections in their closed position, a transversely adjustable horizontal ram assembly mounted on the frame adjacent the first sidewall and having a horizontal ram substantially closing the portion of the first wall opening transversely rearwardly to the backwall assembly and second means for moving the horizontal ram longitudinally from a datum position to a position adjacent the second wall opening for pushing compressed product through the second wall opening, a transversely adjustable spout assembly mounted on the second wall that opens to the second wall opening and a vertical ram assembly mounted on the frame and having a transversely adjustable vertical ram, and power means mounted on the frame for mounting the vertical ram and moving the vertical ram between the sidewalls, the door sections in their closed position and the backwall assembly between a retracted datum position and a position more closely adjacent the bottom press plate.

19. The apparatus of claim 18 further characterized in that the first terminal door section is fixedly mounted on at least one of the frames and the bottom press plate transversely adjacent the loading chamber opening and third means mounted on the frame for vertically moving the door sections connected to the first terminal door section progressively between loading chamber opening opened and closed position.

20. The apparatus of claim 19 further characterized in that the third means includes a longitudinal roller having door sections reversely bent thereover to depend therefrom at least on the transverse side thereof opposite the loading chamber opening and fourth means for supportingly mounting the roller and moving it selected vertical increments.

21. The apparatus of claim 20 further characterized in that the fourth means includes a pair of chains having first terminal end portions connected to the second terminal door section.

22. The apparatus of claim 21 further characterized in that a second roller is mounted on the frame transversely adjacent the bottom press plate front edge and vertically at a lower elevation than the bottom press plate, and that in the loading chamber opening closed position, said chains have portions that are at one end connected to the chains first edge portions thence extending downwardly to extend at least partially around said second roller, and then rearwardly beneath the bottom press plate.

23. The apparatus of claim 18 further characterized in that each of said rams includes a main press plate transversely adjacent the loading chamber opening, an extension plate extending transversely between the respective main press plate and the backwall assembly, and third means for mounting the extension plate on the respective main press plate for movement therewith and transversely relative thereto with the backwall assembly at least in the ram datum position as the backwall assembly moves to automatically adjust the transverse working width of the ram.

24. The apparatus of claim 23 further characterized in that the spout assembly includes a first spout section transversely adjacent the loading chamber opening of at least a size to have the horizontal ram main plate moved therethrough and fixedly mounted on the second wall, a second spout section cooperating with the first spout section to define a spout and means for mounting the second spout section for limited transverse movement and connected to the backwall assembly for automatically moving the second spout section transversely with the backwall assembly as it moves transversely.

25. The apparatus of claim 24 further characterized in that each of the third means includes a transverse tubular channel fixedly attached to the respective main plate, and extensible means mounted by the respective tubular channel and connected to the extension plate.

26. The apparatus of claim 25 further characterized in that the horizontal ram extensible means includes a vertical longitudinally extending plate joined to the horizontal ram extension plate to extend away therefrom in a direction away from the second wall, and that the third means includes a bracket mounted on the backwall assembly adjacent the first wall for engaging the vertical plate when the horizontal ram is in its datum position to move the vertical plate along with the backwall assembly when and as the backwall assembly is moved toward its retracted position.

27. Compression packer apparatus comprising a frame, a longitudinally elongated bottom press plate, a first and a second transverse sidewall, a transversely movable backwall assembly, drive means on the frame and connected to the backwall assembly for transversely moving said backwall assembly between a retracted position and a position substantially forward of the retracted position, said bottom press plate, sidewalls and backwall assembly being mounted on the frame to form a loading chamber having a load chamber opening, a ram assembly mounted on the frame for movement between the sidewalls and relative the bottom press plate for abuttingly engaging product in the loading chamber and first means for reciprocating the ram assembly between a datum position and a position remote from the datum position, the improvement comprising in the ram assembly having a main ram plate, an extension plate extending transversely between said main ram plate and the backwall assembly, and second means for mounting the extension plate to move with the main plate when the ram assembly is reciprocated and to automatically transversely move the extension plate relative the main plate at least when the ram assembly is in its datum position and as the backwall assembly is moved transversely in one transverse direction.

28. The apparatus of claim 27 further characterized in that the second means includes a transverse tubular channel fixedly secured to the main ram plate, and means fixedly secured to the extension plate and telescopically mounted by said channel for mounting the extension plate to move with the main plate in the direction the ram assembly is reciprocated.

29. The apparatus of claim 27 further characterized in that the first sidewall has a spout opening and that there is provided a spout assembly that opens to the spout opening and is at least in part mounted by the first sidewall, that said second sidewall has an opening longitudinally opposite the spout opening, that said ram assembly comprises a horizontal ram assembly, and that the first means includes a piston cylinder combination connected to main ram plate and extendable into the second sidewall opening for longitudinally moving the main plate toward the spout opening.

30. The apparatus of claim 29 further characterized in that the spout assembly includes a first spout section fixedly attached to the first sidewall, a second spout section cooperating with first spout section for directing product into a container adjacent the spout, and means for mounting the second spout section for transverse movement and connected to the backwall assembly for automatically transversely moving the second spout section when and as the backwall assembly is transversely moved in at least one direction.

31. The apparatus of claim 27 further characterized in that said ram assembly comprises a horizontal first ram plate, second means mounted on the frame for moving the first plate vertically between a datum position and a position substantially more closely adjacent the bottom press plate, a generally horizontal second ram plate extending transversely between the first ram plate and the backwall assembly, and third means for mounting the second plate on the first plate to vertically move the second plate as the first plate is moved vertically and engaging the backwall assembly to transversely move the second plate as the backwall assembly is moved transversely.

32. The apparatus of claim 31 further characterized in that the second sidewall has a ram opening opening to the bottom press plate, and that there is provided a horizontal ram assembly, the horizontal ram assembly including a vertical main third plate longitudinally movable between a datum position closely adjacent the second wall to a more closely adjacent the first wall, an extension vertical fourth plate extending transversely between the third plate and the backwall assembly, fourth means connected to the third and fourth plates for moving the fourth plate longitudinally as the third plate is moved longitudinally and to the backwall assembly to move the fourth plate transversely in the same direction as the backwall assembly at least when the third plate is in its datum position and the backwall assembly is moved transversely, and power means connected to at least one of the fourth means and the third plate and mounted on the frame for imparting longitudinal movement to the third plate to move the third plate between its positions.

33. The apparatus of claim 32 further characterized in that each of the third and fourth means includes a transverse channel fixedly mounted by the first plate and third plate respectively and a transverse member fixedly connected to the second plate and fourth plate respectively and telescopically extended in the respective channel to transfer a moving force from the first plate to the second plate in a vertical direction and from the third plate to the fourth plate in a longitudinal direction.

34. The apparatus of claim 33 further characterized in that there is provided a door assembly that is at least partially mounted by the frame for selectively closing said loading chamber opening, said door assembly including a plurality of longitudinally elongated first door sections having adjacent longitudinally extending edge portions movable connected to one another, a terminal second door section connected to the longitudinal edge portion of one of the first door sections remote from its connection to the other door sections and a terminal third door section connected to the longitudinal edge portion of another of the first door sections that is remote from the connection of said another first door section to the other first door sections, fifth means connected to the door sections for moving the first door sections progressively to a position partially closing the loading chamber opening, and power means mounted on the frame and connected to the fifth

means for operating the fifth means to move the first door sections between a loading chamber opening opened position and a loading chamber opening closed position.

35. The apparatus of claim 34 further characterized in that the fifth means includes a longitudinally extending first roller having the first door sections reversely bent thereover to have at least one run in part depend therefrom and sixth means driven by the power means and connected to the roller to move the roller vertically upwardly selected increments to progressively move the first door sections to a loading chamber opening closed position.

36. The apparatus of claim 35 further characterized in that the bottom press plate has a front edge portion adjacent the loading chamber opening, and that the first terminal door section is fixedly attached to at least one of the frame and bottom press plate adjacent the front edge portion.

37. The apparatus of claim 36 further characterized in that the roller has a sprocket at each longitudinal end thereof, and that the sixth means includes a pair of longitudinally spaced chains each having a first terminal end mounted on one of the frame and the adjacent sidewall at a higher elevation than the loading chamber opening and first run portions first extending downwardly from the first terminal chain end, then reversely bent around the respective roller sprocket to supportingly mount the roller sprocket, thence upwardly to a higher elevation than the loading chamber opening, and subsequently downwardly to a lower elevation than the bottom press plate and a second run portion having one end connected to the

portion extending downwardly at its lowermost elevation and an opposite end connected to the second terminal door section, and seventh means for mounting said run portions to extend in the above-mentioned manner.

38. The apparatus of claim 37 further characterized in that the seventh means includes a second longitudinal roller mounted on the frame at a lower elevation than said front edge and adjacent thereto to have at least one of the second run portion and the first door sections extend partially therearound and thence upwardly toward the first roller.

39. The apparatus of claim 37 further characterized in that the backwall assembly includes a plurality of longitudinally spaced uprights and that there is provided a precompression assembly mounted on the frame that includes a plurality of longitudinally spaced, transversely extending rigid fingers, a carriage for mounting the fingers for transverse movement between the bars, a subframe mounted on the frame for vertical movement and mounting the carriage for transverse movement between a retracted position that the backwall assembly in its retracted position is forwardly of the fingers and a position that the fingers extend closely adjacent the door assembly in a closed position, means connected to the carriage for moving it transversely between its position, and means mounted on the frame and connected to the subframe for moving it vertically between a retracted position and a position that the fingers are substantially vertically closer to the bottom press plate.

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