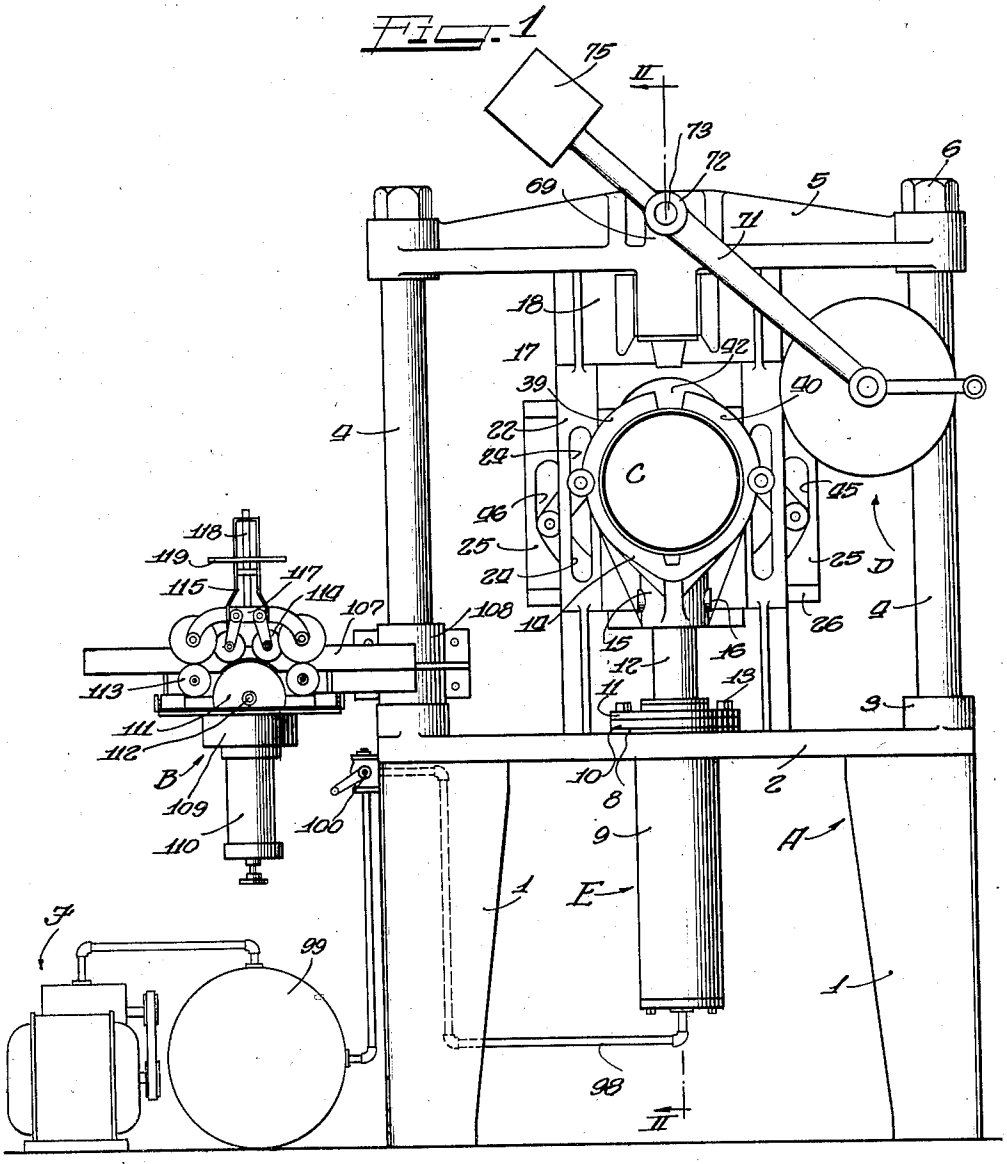
Jan. 3, 1933. R. F. LYON ET AL 1,892,675

METHOD OF AND APPARATUS FOR FORMING SULPHURIZED FIBER BOARD CONTAINERS

Filed Oct. 15, 1931 7 Sheets-Sheet 1

Fig. 1



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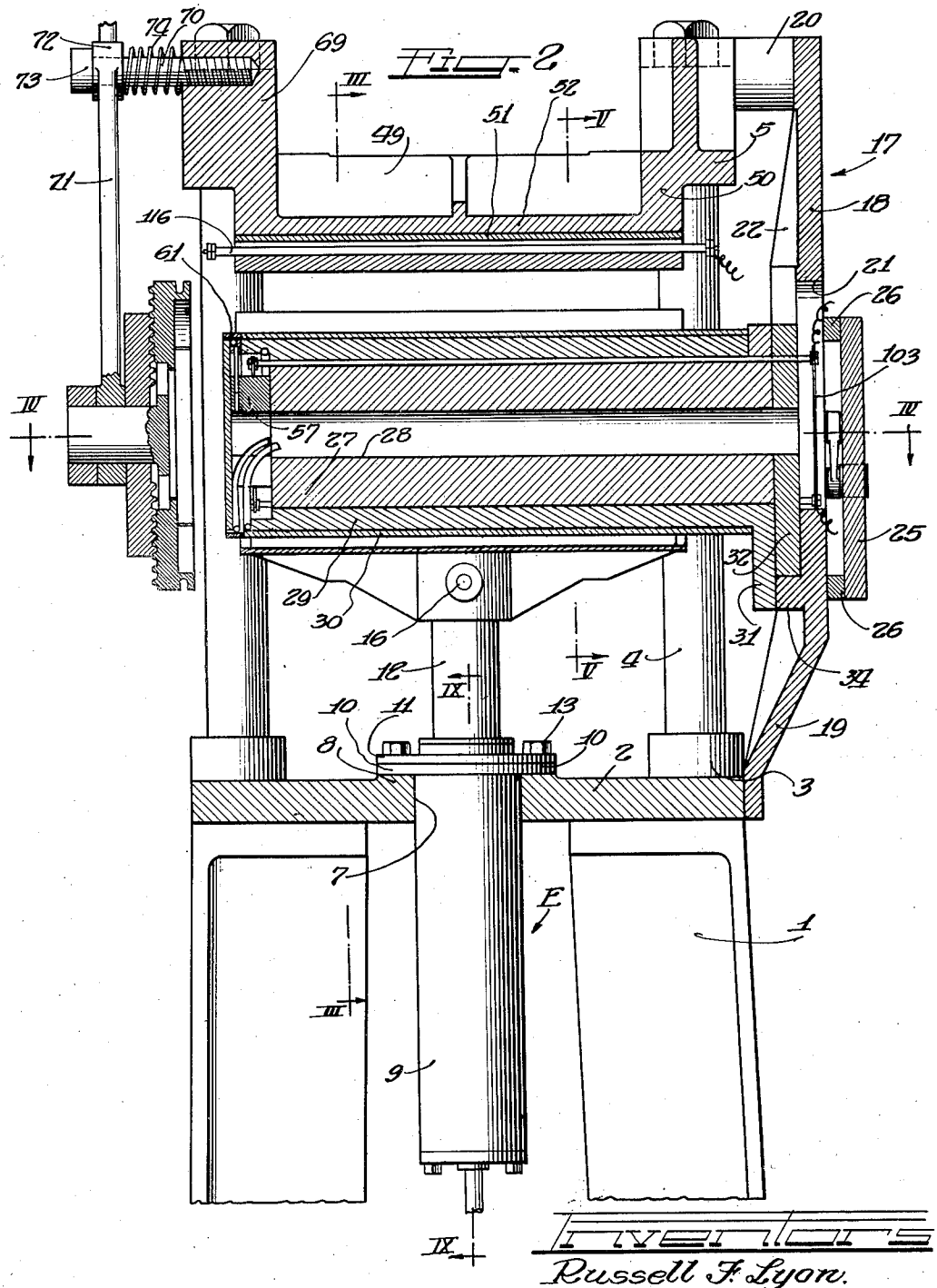
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METHOD OF AND APPARATUS FOR FORMING SULPHURIZED FIBER BOARD CONTAINERS

Filed Oct. 15, 1931 7 Sheets-Sheet 2



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METHOD OF AND APPARATUS FOR FORMING SULPHURIZED FIBER BOARD CONTAINERS

Filed Oct. 15, 1931 7 Sheets-Sheet 3

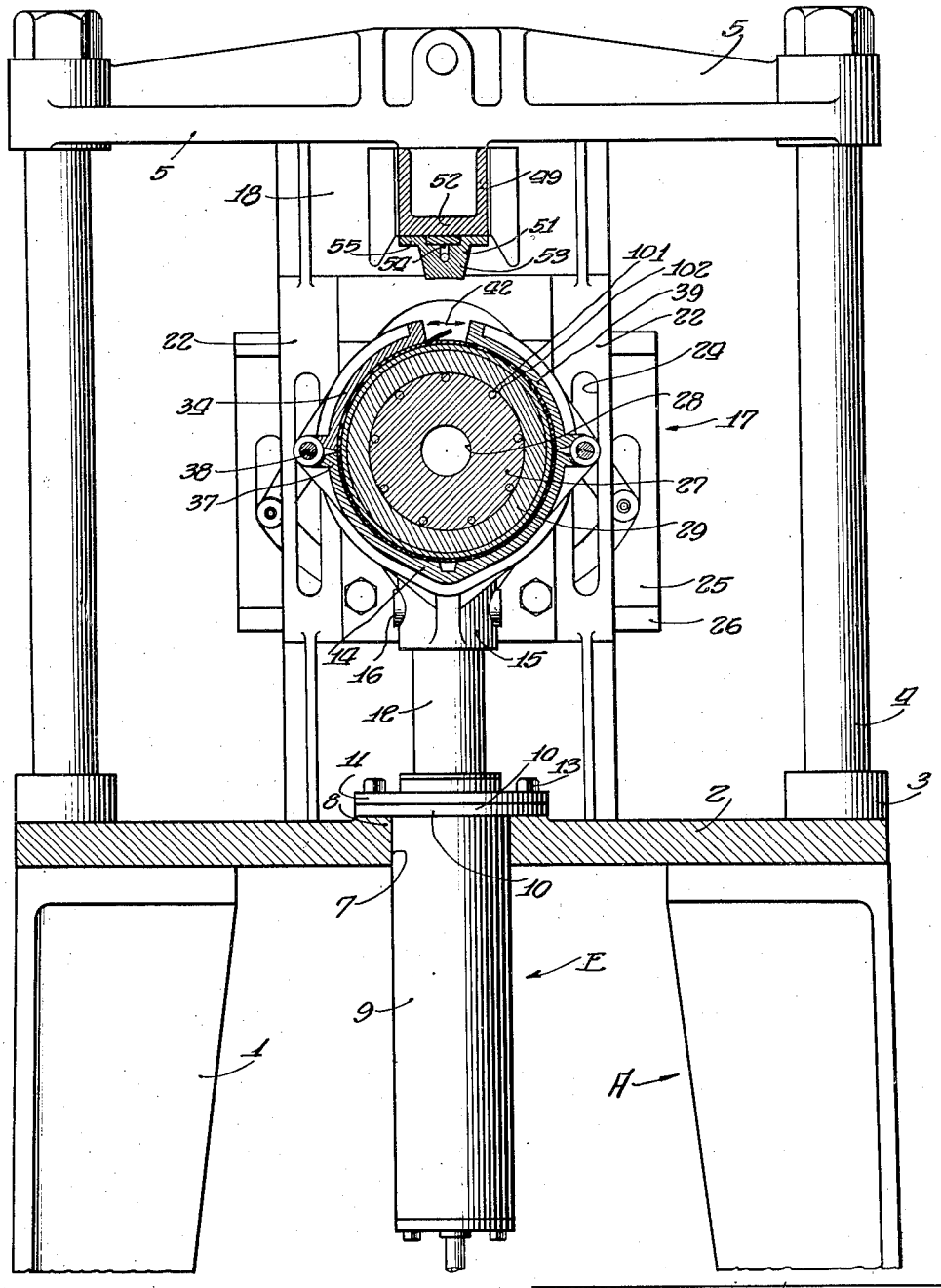


FIG. 3

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METHOD OF AND APPARATUS FOR FORMING SULPHURIZED FIBER BOARD CONTAINERS

Filed Oct. 15, 1931 7 Sheets-Sheet 4

Fig. 9

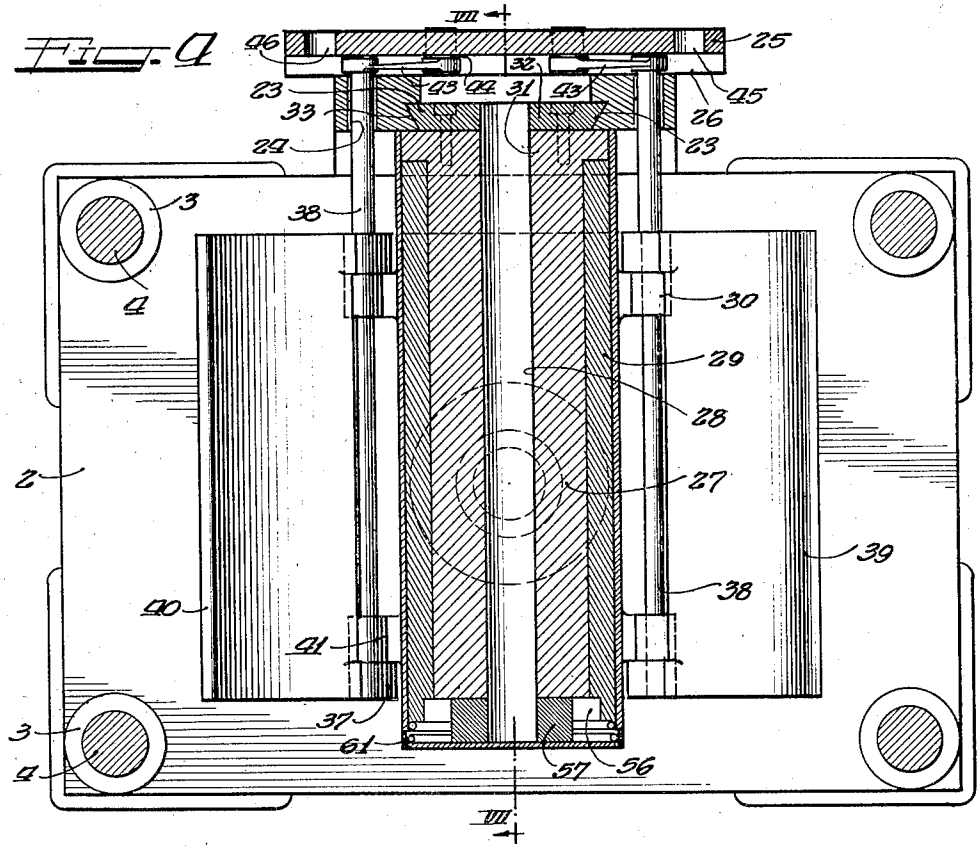


Fig. 13

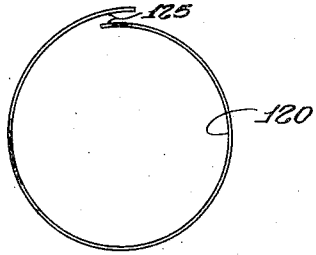


Fig. 15

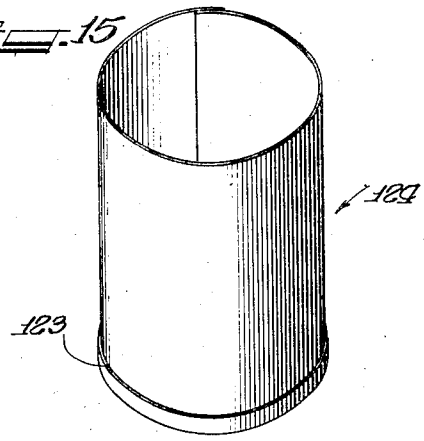
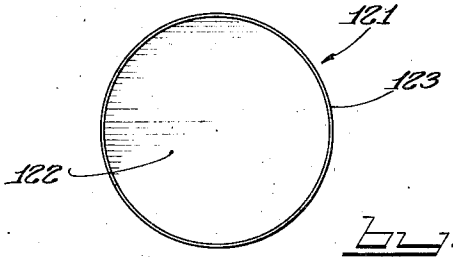


Fig. 14



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METHOD OF AND APPARATUS FOR FORMING SULPHURIZED FIBER BOARD CONTAINERS

Filed Oct. 15, 1931 7 Sheets-Sheet 5

Fig. 5

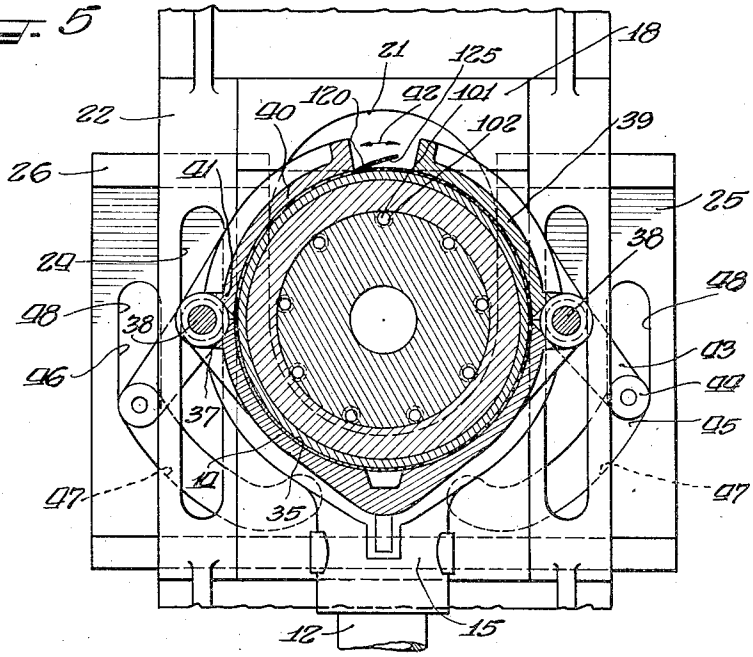
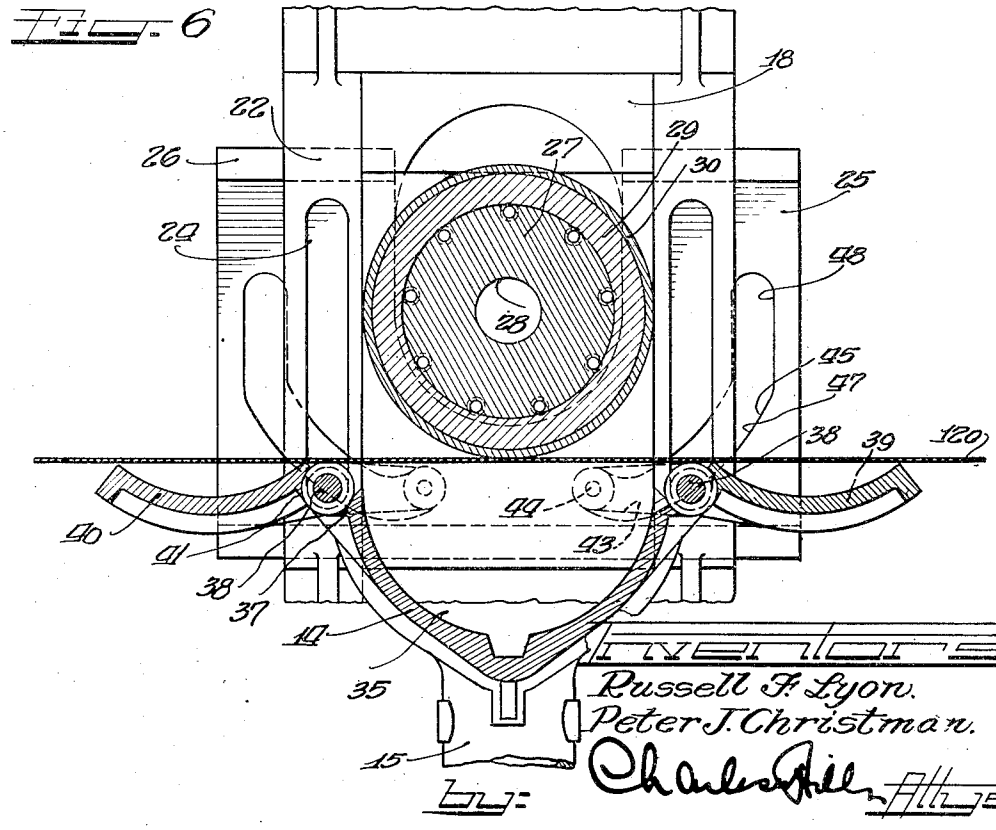


Fig. 6



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METHOD OF AND APPARATUS FOR FORMING SULPHURIZED FIBER BOARD CONTAINERS

Filed Oct. 15, 1931 7 Sheets-Sheet 6

Fig. 7

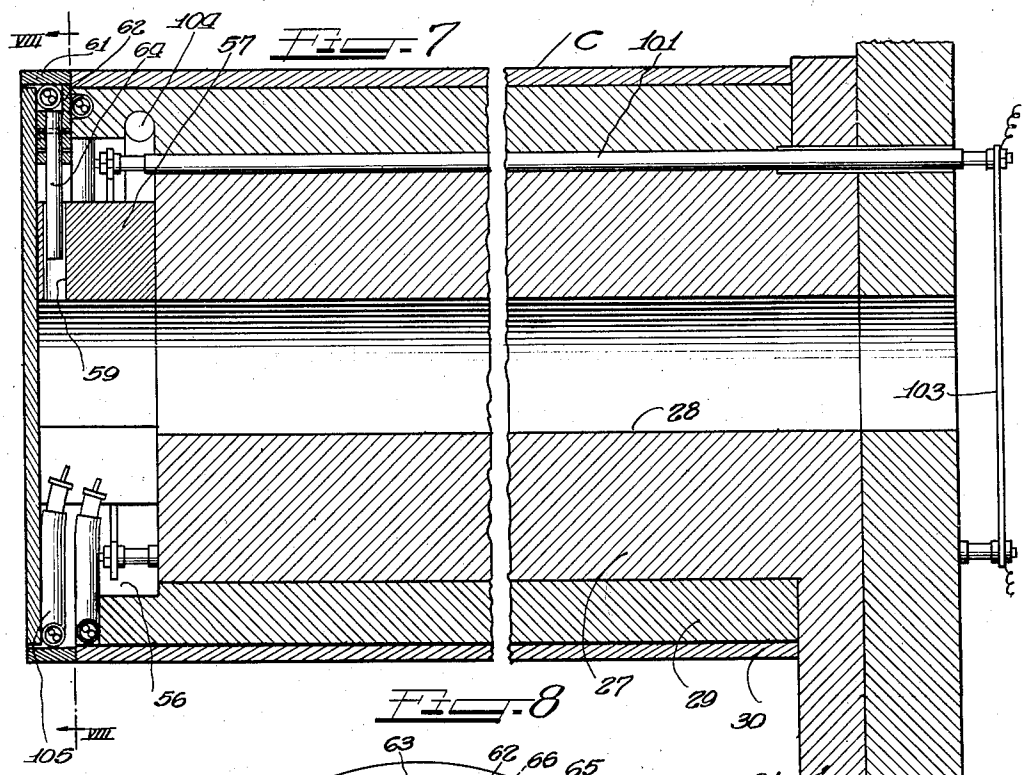
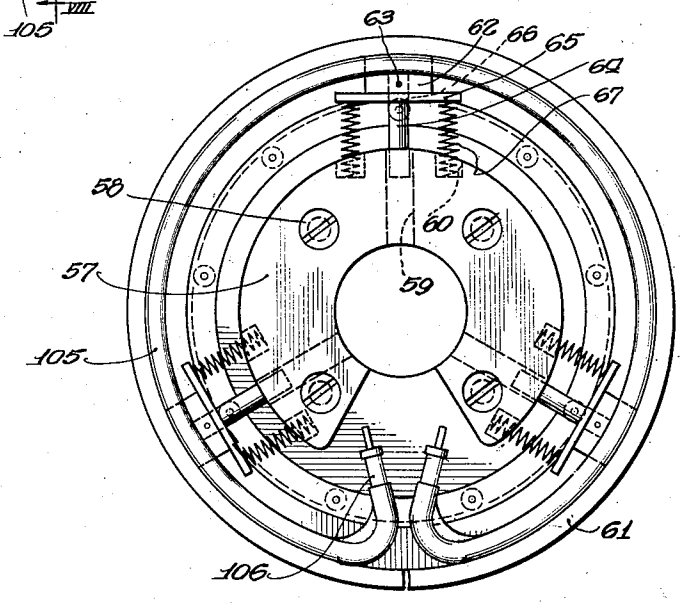


Fig. 8



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METHOD OF AND APPARATUS FOR FORMING SULPHURIZED FIBER BOARD CONTAINERS

Filed Oct. 15, 1931 7 Sheets-Sheet 7

Fig. 9

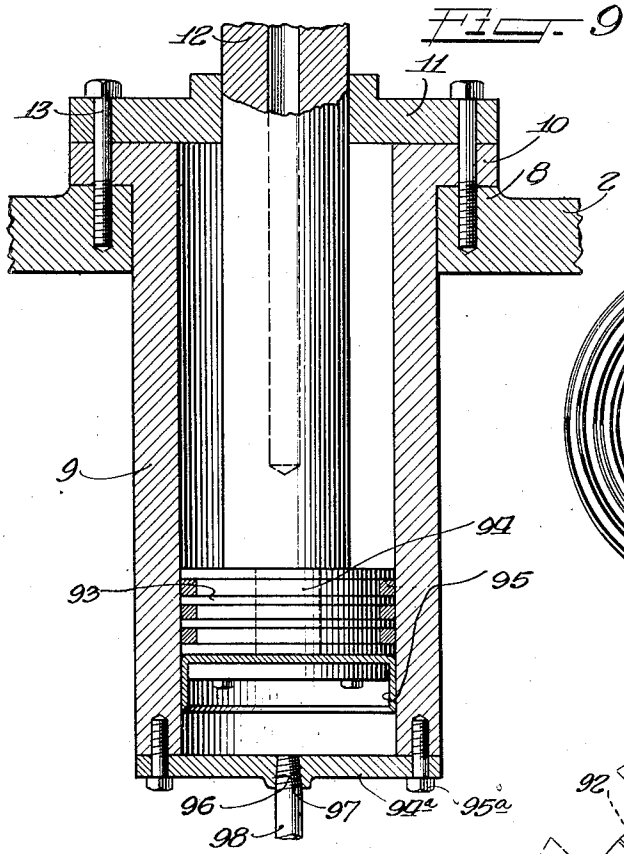


Fig. 11

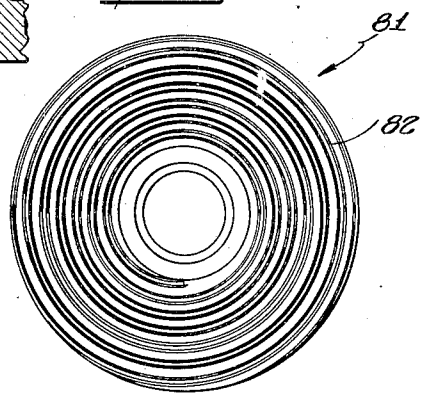


Fig. 12

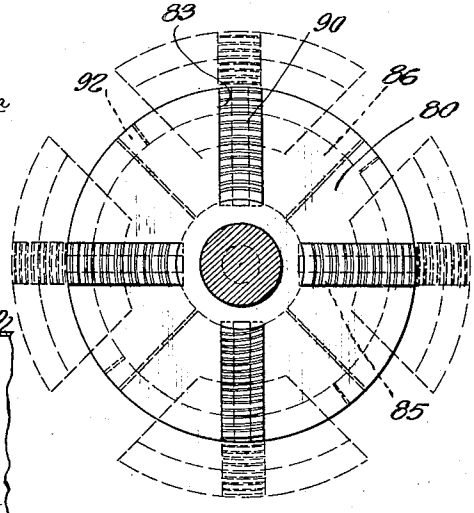
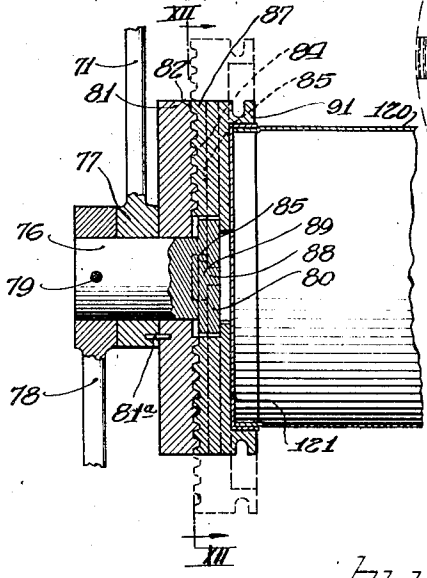


Fig. 10



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Patented Jan. 3, 1933

1,892,675

UNITED STATES PATENT OFFICE

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METHOD OF AND APPARATUS FOR FORMING SULPHURIZED FIBER BOARD CONTAINERS

Application filed October 15, 1931. Serial No. 569,099.

This invention relates to machines for making containers and particularly to machines for making cylindrical cans of paper board or fiber board, but preferably of sulphurized fiber board.

It is the primary object of this invention to provide a machine for turning out fiber board containers in which a minimum of manual control is necessary.

It is an object of this invention to provide a machine which is capable of receiving a sheet of material and forming it into a container.

It is a further object of this invention to provide a machine having a single operating means for forming and sealing a sulphurized fiber board container.

It is a still further object of this invention to provide a cantainer-forming machine having body and end sealing means.

It is a particular object of this invention to provide a container forming machine having a heated mandrel and means cooperable therewith for forming a container thereabout.

It is a further particular object of this invention to provide a container-forming machine having a heated mandrel about which the container is formed and means cooperable therewith for sealing the body of the container and an end thereof.

It is also an object of this invention to provide a novel process for making fiber board containers.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

This invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is an end elevational view of the container-forming machine of our invention.

Figure 2 is a sectional view taken on the line II—II of Figure 1, with parts in elevation.

Figure 3 is a sectional view taken on the line III—III of Figure 2, with parts in elevation.

Figure 4 is a sectional view taken on the line IV—IV of Figure 2.

Figure 5 is a detail sectional view on the line V—V of Figure 2, showing the pressure wings folded about the mandrel.

Figure 6 is a sectional view similar to Figure 5 but showing the pressure wings in open position.

Figure 7 is an enlarged vertical sectional view through the mandrel taken substantially on the line VII—VII of Figure 4.

Figure 8 is a sectional view taken on the line VIII—VIII of Figure 7.

Figure 9 is a fragmentary enlarged sectional view taken on the line IX—IX of Figure 2.

Figure 10 is a vertical sectional view through the heading mechanism.

Figure 11 is an elevational view taken on the line XI—XI of Figure 10.

Figure 12 is an elevational view taken on the line XII—XII of Figure 10.

Figure 13 is an end elevation of a partly formed container body portion.

Figure 14 is a plan view of a bottom for a container and—

Figure 15 is a perspective view of a container and bottom therefor formed by the mechanism of our invention.

As shown on the drawings:

The machine of our invention comprises a supporting framework A, a glue pot and associated rolls B attached to the framework A, a container-forming mechanism and mandrel C, a heading element D, and an operating mechanism E controlled by air pump F.

The framework A comprises a number of supporting legs 1 on top of which a rectangular base plate 2 is mounted. The plate 2 is provided with a number of upstanding open sockets 3, preferably having a socket in each corner thereof. The sockets 3 may be welded or bolted to the plate 2, or they may be cast integral therewith. The remainder of the supporting structure or framework A comprises a number of posts 4, each of which extends upwardly from one of the sockets 3 in which it is firmly secured. Front and rear cross pieces 5 rest on shoul-

ders formed at the upper portions of the posts 4 and serve as a support for a part of the apparatus later to be described. The cross pieces 5 have apertures at their ends and are fitted over the posts 4 and held thereon by nuts 6 threaded on the ends of the posts.

As shown in Figures 2 and 3, the base plate 2 is provided with an aperture 7 which is surrounded by a peripheral boss 8. A cylinder 9 of the lifting mechanism E fits thru the aperture 7 and is suspended by an integral collar or flange 10 which rests on the boss 8 (Figure 9). A gland 11 fitting around a piston rod 12 which extends upwardly from the mechanism E, serves as a guide bearing for said piston rod. Bolts 13 pass thru the collar 11 and flange 10 and are threaded into the boss 8 to hold the lifting mechanism E in place. The operation of the mechanism E will be explained later.

The piston rod 12 carries a forming member 14 (Fig. 1). The forming member or carriage 14 has an upper concave surface and extends for substantially the length of the mandrel C. A socket member 15 is formed integrally with the under surface of the carriage 14 and receive the top end of the piston rod 12 upon which it is securely fastened by means of set screws 16.

The mandrel C is supported in cantilever fashion on a framework 17 which extends upwardly from the plate 2 to the rear cross piece 5 (Figure 2).

The framework 17 comprises a plate 18 which is attached to the base plate 2 thru a lower offset end portion 19 that serves to space the plate 18 from the posts 4. The top of the plate 18 is secured by means of spacers 20 to the rear cross piece 5.

The plate 18 is provided with an aperture 21 and two forwardly extending guide flanges 22 bound the sides of the aperture and extend for a distance therebelow. The guide flanges 22 are provided with inner opposed beveled edges 23 and vertical slots 24 (Figure 4) for a purpose hereinafter to appear.

A cam plate 25 which is slightly broader than plate 18 is attached to the rear of said plate 18 and is spaced therefrom by upper and lower bars 26.

The mandrel C (Fig. 7) comprises an inner cylinder 27, hollowed as at 28, and an outer cylinder 29 fitted thereover. A surface cylinder or sheath 30 is forced over the outer cylinder 29. One end of the outer cylinder 29 is provided with an enlargement or end flange 31, to which a guide plate 32 is attached. The edges of the guide plate 32 are bevelled at 33 (Figure 4) so as to snugly fit and slide in the previously described guides 22 on plate 18. Thus the mandrel C is supported in a manner to allow one end thereof to be free so as to permit the finished container to be removed, as will be subsequently explained. The mandrel C is free to move up and down in the guide flanges 22 and a stop member 34 (Figure 2) serves to limit downward movement.

Referring particularly to Figures 5 and 6, it will be seen that the forming member 14 is provided with a substantially semi-cylindrical concave upper surface 35 which fits the lower surface of the mandrel C. The forming member 14 is provided with eyes 37 along its upper edges. The eyes 37 loosely receives rods or pintles 38.

Wing members 39 and 40 are mounted on the rods 38 by means of integral hinge eyes 41 which tightly receive the rods 38 so that the wing members rotate with the rods. The wing members 39 and 40 are slightly less than quarter cylinders and are adapted to be folded over the mandrel C by the movement of the rods 38 as will later be explained. When the wings are in folded position, as shown in Figure 5, a gap 42 is left between their longitudinally extending edges.

The rods 38 extend beyond the carriage 14 and wings 39 and 40 and pass thru the slots 24 in the flanges 22 on the supporting plate 18. Attached to the end of each rod 38 is a crank arm 43 which terminates in a cylindrical stud 44 adapted to ride in cam slots 45 and 46 on the cam plate 25 (Figure 4).

Each cam slot has an arcuate lower portion 47 which forces the crank arms 43 to rotate the rods 38 as the carriage 14 is moved upwardly. Each cam slot is also provided with vertical portions 48 at the upper ends of the curved portions to allow the carriage further upward movement after the wings have been folded about the mandrel. The cam slots are not symmetrical but cam slot 45 at the right side of the mechanism is so formed that, as the carriage is moved upward, the rod attached to wing 39 starts to rotate before the other rod 38 starts to rotate. Consequently the right wing 39 (Figure 5) is folded against the mandrel C in advance of the left wing 40.

As will be seen from reference to Figures 2 and 3, the transverse members 5 are connected by a channel member 49 which is connected to the transverse members 5 by depending arms 50. The transverse members 5, and channel member 49 and arms 50 are preferably cast integral and are firmly secured to the posts 4, as previously described. An anvil piece 51 is welded or otherwise secured to the web 52 of the channel member. The anvil 51 has a depending portion 53 which is of trapezoidal cross section and is of such a size as to fit within the gap 42 between the longitudinal edges of the wing members 39 and 40 on carriage 14. The anvil has a deep recess 54 for receiving a heating element as will be described.

Referring particularly to Figures 7 and 8, it will be seen that we have provided the mandrel C with an enlarged cylindrical recess 56 at the head end thereof. A disc 57 is received in the recess 56, and is held in place by bolts 58 threaded into the end of the cylinder 27 of the mandrel C. The disc 57 is provided with a number of cylindrical apertures 59 extending radially thru the sides thereof and spaced about its periphery. The disc is also provided with a number of pairs of shorter recesses 60, extending parallel to said apertures 59, the whole arrangement being such that each larger recess 59 has a smaller recess 60 on either side of it.

The end of the cylinder 29 is provided with a split ring 61, the outside diameter of which, when in contracted position, is approximately the same as the outside diameter of the sheath 30. Depending lugs 62 are secured along the inner periphery of the ring 61. Rod members 64 are secured in each of the lugs 62 by means of a pin 63, the lugs being so spaced about the ring 61 that the rod members extend into the apertures 59. A plate 65 having an aperture 66 is slidably mounted on each of the rods 64 and is pressed against the lug 2 by helical springs 67. Said springs 67 are seated in the recesses 60 which, as previously described, are located adjacent the recesses 59.

The forward cross piece 5 has a boss 69 located centrally thereof (Figures 1 and 2). A pivot shaft 70 is threaded into the boss 69 and extends forwardly of the machine. The heading mechanism D is mounted on one end of an arm 71 which is pivoted on the end of the shaft 70 by means of an integral collar 72 which fits over the shaft 70. The end of the shaft 70 is enlarged as at 73 to keep the arm 71 from falling off and a helical spring 74 serves to resiliently space the mechanism D from the free end of the mandrel C. The free end of the rod 71 is provided with a weight 75 to counterbalance the mechanism D so that the latter may be easily aligned with the end of the mandrel.

The details of the heading mechanism D are shown in Figures 10, 11 and 12. A stub shaft 76 is journalled in a collar 77 on the end of the arm 71. The outer end of the shaft 76 is provided with a handle 78 which is fixedly secured to the shaft, as at 79, so as to rotate the shaft. A plate 80 is formed integral with the inner end of the shaft 76.

A second plate 81 is journalled on the shaft 76 to lie between the plate 80 and the arm 71 and is fixed to the collar 77 as shown at 81*a*. The plate 81 is provided with a spiral thread 82 on its inner surface.

The plate 80 has a number, preferably four, of radially extending slots 83. The plate is recessed adjacent the outer edge of each slot to form depressions 84 and shoulders 85 (Figure 10).

Sectors 86 corresponding in number to the number of slots 83 are held by the plate 80. Each sector 86 has an integral projection 87 extending along its middle portion. The projections 87 are T-shaped and fit the slots 83. The webs 88 of the T-shaped projections fit thru the slots 83 and the heads 89 of the projections are located in the depressions 84. It will be seen that the sectors 86 are thus free to move radially on the plate 80, the shoulders 85 of the plate 80 being sandwiched between the heads of the projections and the sectors to prevent the sectors from moving forwardly or rearwardly. The outer faces of the projections 87 are threaded as at 90 with threads conforming to and engaging with the spiral thread 82 on the adjacent face of plate 81, so that by rotating the plate 80 the sectors may be caused to move radially inwardly and outwardly.

The sectors 86 are provided with outer peripheral flanges 91. The flanges 91 are bevelled as at 92 so that as the sectors are drawn inwardly the flanges may be easily aligned and when the sectors are in innermost position the flanges form a continuous circular flange.

The forming mechanism is operated by a lifting mechanism, shown generally at E, which is controlled by an air pump F.

The piston rod 12 upon which the forming member 14 is mounted terminates in a piston 93 having the usual sealing rings 94 and skirt 95 for preventing leakage. The piston 93 is arranged to slide up and down in the cylinder 9.

The cylinder 9 (Figures 1 and 9) has a bottom 94*a* bolted thereto at 95*a*. The bottom 94*a* has a central aperture 96 which is internally threaded to receive the threaded end 97 of the pipe line 98 from the air pump F.

The air pump F is connected to the lifting mechanism E by the pipe line 98 in which there is mounted a storage tank 99 and a controlling valve 100. The pump F is used as a compressor forcing air into the tank 99 and into the cylinder 9, causing the piston to rise. The valve 100 serves to exhaust the cylinder to thereby lower the piston 93 and forming member 14.

The mandrel C and associated parts are heated by electrical means. The heating means comprise a number of resistance elements 101 which are mounted in cylindrical apertures 102 which are spaced about the periphery of the inner cylinder 27, as will be clearly seen from reference to Figure 3. These resistance elements convert the electrical energy into heat to thereby heat the mandrel. The elements 101 are connected by a bus bar 103. The switching mechanism (not shown) may be manually controlled or may be controlled by a thermostat as illustrated diagrammatically at 104 (Figure 7).

At the heading end of the mandrel, there

are a number of heating coils 105 in the recess 56 adjacent the split ring 61. The coils 105 have terminals 106 which are connected to the bus bar.

The anvil 51 is heated by a resistance element 116 which is located in the recess 54. This element 116 is connected to the mandrel heating circuit.

Our invention also contemplates gluing apparatus B for coating the material which is to be formed into a container, with glue. This apparatus B is preferably attached to one of the posts 4 in such a position that little effort is required to direct the material from the gluing apparatus to the mandrel.

The gluing apparatus B does not of itself form a part of our invention and various types may be substituted for that shown in Figure 1. The gluing apparatus illustrated comprises an end plate or support 107 which is attached to a post 4 by a collar 108 which is fastened about one of the posts 4. A glue pot 109 and heater 110 are supported in dependent relation from the plate 107. A fountain roll 111 having a shaft 112 journalled in the plate 107 has a portion thereof dipping in the glue pot 109. Guide rolls 113 are journalled in the plate 107 adjacent to the roll 111 and pressure rolls 114 are adjustably mounted on a frame 115. The pressure rolls 114 are mounted on a plunger 117 which slides in the frame 115. A threaded shaft 118 is attached thereto and is threaded thru a cross plate 119 on the frame so that it may be turned to adjust the pressure of rolls 114.

The process of making a fiber board container is carried out on our apparatus in the following manner:

The fiber board or other sheet material 120 to be formed into the container is twice passed over the gluing roll 108 to apply glue successively along one longitudinal margin and one transverse margin. The coated fiber board is then placed on the forming member 14 so that it may be folded about the mandrel C. The material is so placed that the longitudinal glue-coated margin will lie exposed in the gap 42 after the right wing 39 has reached its limit of travel and the other glue-coated margin will be at the forward or heading end of the mandrel.

The air pump is started to move the piston 93 upwardly in the cylinder. This causes the forming member to rise and fold the sheet 120 about the lower surface of the mandrel. As the forming member is elevated, the studs 44 on the crank arms 43 ride upwardly in the cam slots 45, 46, causing the rods 38 to rotate to thereby fold the wing members 39, 40, and the sheet 120 about the mandrel. As previously set out, the cam slots are not symmetrical but are so formed that the wing member 39 folds over the mandrel slightly in advance of the wing member 40. This causes the sheet to overlap as at 125 in the gap 42. The sheet at this stage of the process is illustrated in Figure 13.

As the plunger continues in its upward movement, the mandrel C is borne upwardly in its guides by the forming element 14 and is forced against the heated anvil 51. This causes a pressure against the overlapped portions 125 to form the sheet into a cylinder, the heat and pressure causing the glued overlapped portions 125 to permanently adhere together.

The container end 121 (Figure 14) comprising the usual disc 122 with peripheral flange 123 is placed in the heading mechanism D. The heading mechanism is then manually swung about the pivot 70 into alignment with the mandrel. The arm 71 is then pressed against the action of the spring 74 so that the heading mechanism and the container end member are directly over the end of the container. Upon turning the handle 78, the sectors 86 close in on the end member 121 and container 120 to afford sufficient pressure to unite the end member to the previously cement-coated container. The resiliently mounted split ring 61 serves to equalize the pressure of the heading mechanism about the container in case the mechanism D is not truly aligned with the mandrel C.

By turning the handle 78 in the reverse direction, the heading mechanism may be opened up. The valve 100 is opened to exhaust the cylinder 9 to withdraw the carriage from the mandrel, the cam slots causing the wings to unfold as the carriage moves downwardly. The container may then be removed by withdrawing it from the end of the mandrel.

The completed container is illustrated at 124 in Figure 15.

Our machine and process are particularly adapted for forming containers from sheets of sulphurized fiber board. The heating elements in the mandrel serve to heat the fiber board to a temperature sufficient to allow it to be molded about the mandrel. In this case, a sulphur cement such as the sulphur-casein cement described in the patent application of William R. Willauer entitled "Adhesive", Serial No. 450,062, filed May 5, 1930, is used. The joint produced by using this sulphur-casein cement and applying heat and pressure has abnormally high shearing and bursting strength.

While we have described a complete mechanism for the carrying out of the steps of forming a fiber board container, it will be understood that various details of construction may be changed. Also, many parts which are shown as manually operated may be operated automatically. For example, the air pump may be operated by timed mechanism which times the compression of the

pump and exhaust of valve 100 so that the lifting and lowering of the mandrel may be accomplished without the attention of an operator. Further, the heating element in the mandrel and in the anvil piece may be operated manually or may be connected to a thermostatically controlled switch. In view of the numerous changes which may be made without departing from the spirit of our invention, it is to be understood that we do not wish to be limited by the herein disclosed embodiment of our invention but only by the scope of appended claims and the prior art.

We claim as our invention:

1. In a machine of the class described, a supporting frame, an anvil attached to and depending from the top of said frame, a guide member at the rear of said frame, a mandrel slidably mounted on said guide member for movement toward and away from said anvil, a forming member having wings for folding a sheet of material about said mandrel, means for raising said mandrel and forcing it against said anvil and means cooperating with said raising means for folding said wings about said mandrel.

2. In a machine of the class described, a supporting frame, an anvil attached to and depending from the top of said supporting frame, a guide plate at the rear of said supporting frame, a slotted cam plate attached to said frame, a mandrel slidably mounted from said guide plate, a forming member, pintles carried by said forming member, pressure wings fixedly mounted on said pintles, crank arms on the ends of said pintles, said crank arms being movably guided in said slots in said cam plate and means for moving said forming member against said mandrel to press said mandrel against said anvil while simultaneously in cooperation with said slots and crank arms causing said wings to fold about said mandrel.

3. In a machine of the class described, a stationary frame work, an anvil mounted in dependent relation therefrom, a mandrel mounted in cantilever fashion on said framework and movable toward and away from said anvil, a forming member having wings for folding a sheet of material about said mandrel, means for successively moving said forming member toward said mandrel and said mandrel toward said anvil and means in cooperation with said first means for folding said wings about said mandrel.

4. In a machine of the class described, a framework, an anvil mounted in dependent relation from said framework, a mandrel mounted on said framework movable toward and away from said anvil, a forming member having wings for folding a sheet of material about said mandrel, means for successively moving said forming member toward said mandrel and said mandrel toward said anvil, means cooperating with said first means for folding said wings about said mandrel and heating means for maintaining said mandrel at an elevated temperature to aid in forming said sheet of material into a container.

5. In a machine of the class described, a stationary frame work, an anvil mounted in dependent relation therefrom, a mandrel mounted on said framework movable toward and away from said anvil, a forming member including hinged wings for folding a sheet of material about said mandrel, means for successively moving said forming member toward said mandrel and said mandrel toward said anvil and means including cam slots engageable by pintles of the hinge connections of said wings cooperating with said first means for folding said wings about said mandrel.

6. In a machine of the class described, a framework, an anvil mounted in dependent relation from said framework, a mandrel mounted on said framework movable toward and away from said anvil, a forming member including wings hingedly attached thereto for folding a sheet of material about said mandrel, means for successively moving said forming member toward said mandrel and said mandrel toward said anvil, means including cams engageable by pintles of the hinges of said wings and cooperating with said first means for folding said wings about said mandrel.

7. In a machine of the class described, a framework, and anvil mounted from said framework, a mandrel slidably mounted on said framework for movement toward and away from said mandrel, a forming member having wings fixedly mounted on pintles carried thereby, means for successively moving said forming member against said mandrel and said mandrel against said anvil, means including a pair of unsymmetrical cams engageable with the pintles on said forming member for folding first one wing and then the other about said mandrel to thereby fold a sheet of material about said mandrel with the ends thereof overlapping and means for maintaining said anvil at an elevated temperature to aid in sealing the overlapping ends of said sheet about said mandrel.

8. In a machine of the class described, a framework, an anvil mounted from said framework, a mandrel slidably mounted on said framework for movement toward and away from said anvil, a forming member having wings for folding a sheet of material about said mandrel, means for successively moving said forming member toward said mandrel and said mandrel toward said anvil and means cooperating with said first means and including a pair of unsymmetrical cams associated with said wings for folding first one wing and then the other about said man-

drel to fold a sheet of material about said mandrel and overlap the ends thereof, and heating elements in said anvil and in said mandrel.

9. In a machine of the class described, a framework, an anvil supported from said framework, a mandrel slidably mounted for movement toward and away from said anvil, a forming member having wings fixedly mounted on pintles carried thereby, means for successively moving said forming member against said mandrel and said mandrel against said anvil, means cooperating with said first means and including a pair of unsymmetrical cams engageable by the hinge pintles of said wings for folding first one wing member and then the other about said mandrel to fold a glue-coated sheet of material about the mandrel with the glue ends overlapping, said wings being of a size to allow a gap between the ends thereof so that the overlapping ends of the material may be forced together as the mandrel moves against the anvil.

10. In a machine of the class described, in combination, a stationary anvil, a mandrel movable relative thereto, a forming member having wings mounted on pintles pivoted on said forming member, means for successively moving said forming member against said mandrel and said mandrel against said anvil, means cooperating with said first means and including cams engageable by said hinge pintles for folding said wings and a sheet of material about said mandrel and a heading member having a contractible peripheral portion movable into cooperable engagement with an end of said mandrel to seal a flanged bottom on the container formed from said folded sheet of material.

11. In a machine of the class described, in combination, a stationary anvil, a cylindrical mandrel moveable relative thereto, a forming member having wings mounted on pintles pivoted on said forming member, means for successively moving said forming member against said mandrel and said mandrel against said anvil, means cooperating with said first means and including cams engageable by said hinge pintles for folding said wings and a sheet of material about said mandrel, a heading member having a contractible peripheral portion moveable into cooperative engagement with an end of said mandrel to seal a flanged bottom on the container formed from said folded sheet of material and resilient means on said end of said mandrel for equalizing the pressure exerted by the peripheral portion of said heading member.

12. In a machine of the class described, in combination, a stationary anvil, a mandrel movable relative thereto, a forming member having wings mounted on pintles pivoted in said forming member, means for successively moving said forming member into cooperative engagement with said mandrel and said mandrel into cooperative engagement with said anvil, means cooperating with said first means and including cams engageable by said hinge pintles for folding said wings and a sheet of material about said mandrel, a heading member having a contractable peripheral portion movable into cooperative engagement with an end of said mandrel to seal a flanged bottom on the container formed by said folded sheet of material and heating elements in said mandrel and in said anvil for aiding the formation of said container.

13. In a machine of the class described, in combination, a stationary anvil, a cylindrical mandrel movable relative thereto, a forming member having wings mounted on pintles pivoted in said forming member, means for successively moving said forming member into cooperative engagement with said mandrel and said mandrel into cooperative engagement with said anvil, means cooperating with said first means and including cams engageable by said hinge pintles for folding said wings and a sheet of sulphurized fiber board about said mandrel, a heading member having a contractable peripheral portion movable into cooperative engagement with an end of said mandrel for sealing a flanged bottom on the container formed by said folded sheet of fiber board, resilient means on said end of said mandrel for equalizing the pressure exerted by the peripheral portion of said heading member and heating elements in said mandrel and in said anvil for aiding in forming and sealing the container.

14. In a machine for forming fiber board containers, a mandrel, a forming member movable with respect to said mandrel, wing members fixedly mounted on hinge pintles journalled in said forming member and a plate having cam slots therein engageable by said hingle pintles for folding said wings and a sheet of fiber board about said mandrel as said forming member is moved against said mandrel.

In testimony whereof, I have hereunto subscribed my name at Green Bay, Brown County, Wisc.

RUSSELL F. LYON.

In testimony whereof, I have hereunto subscribed my name at Green Bay, Brown County, Wis.

PETER J. CHRISTMAN.