June 1, 1937. I. E. BLACK ET AL 2,081,908

CONTAINER SEALING MACHINE

Filed Jan. 5, 1934 5 Sheets-Sheet 1

Fig. 1.

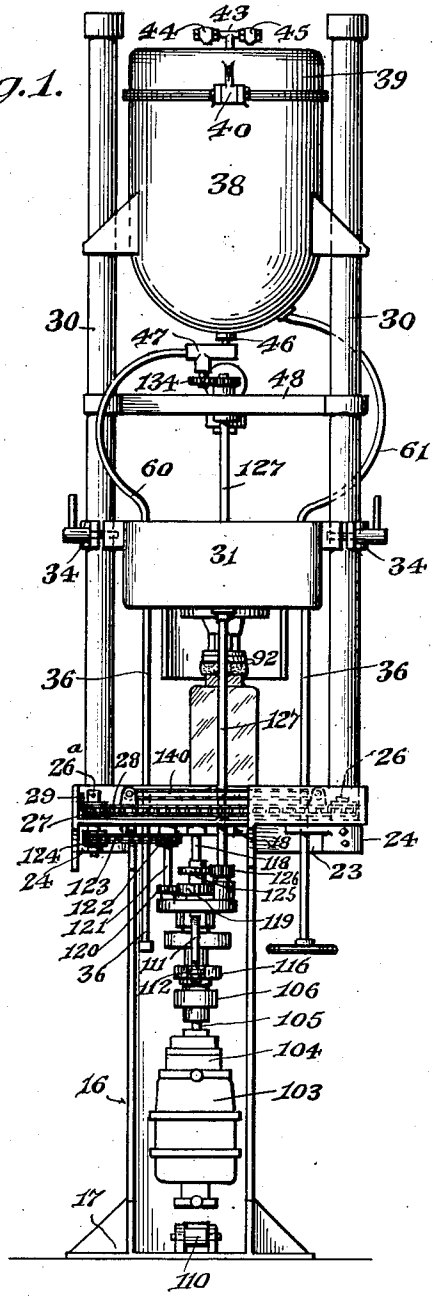
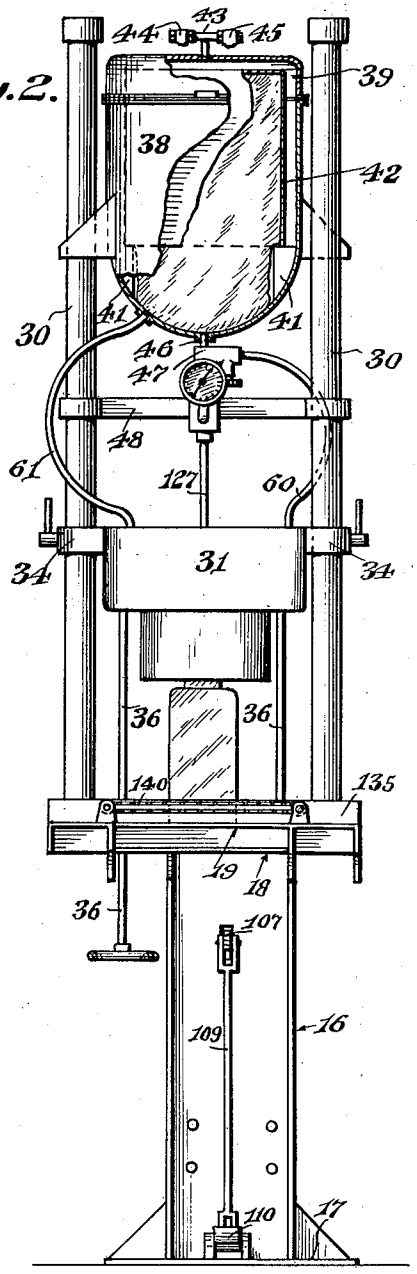


Fig. 2.



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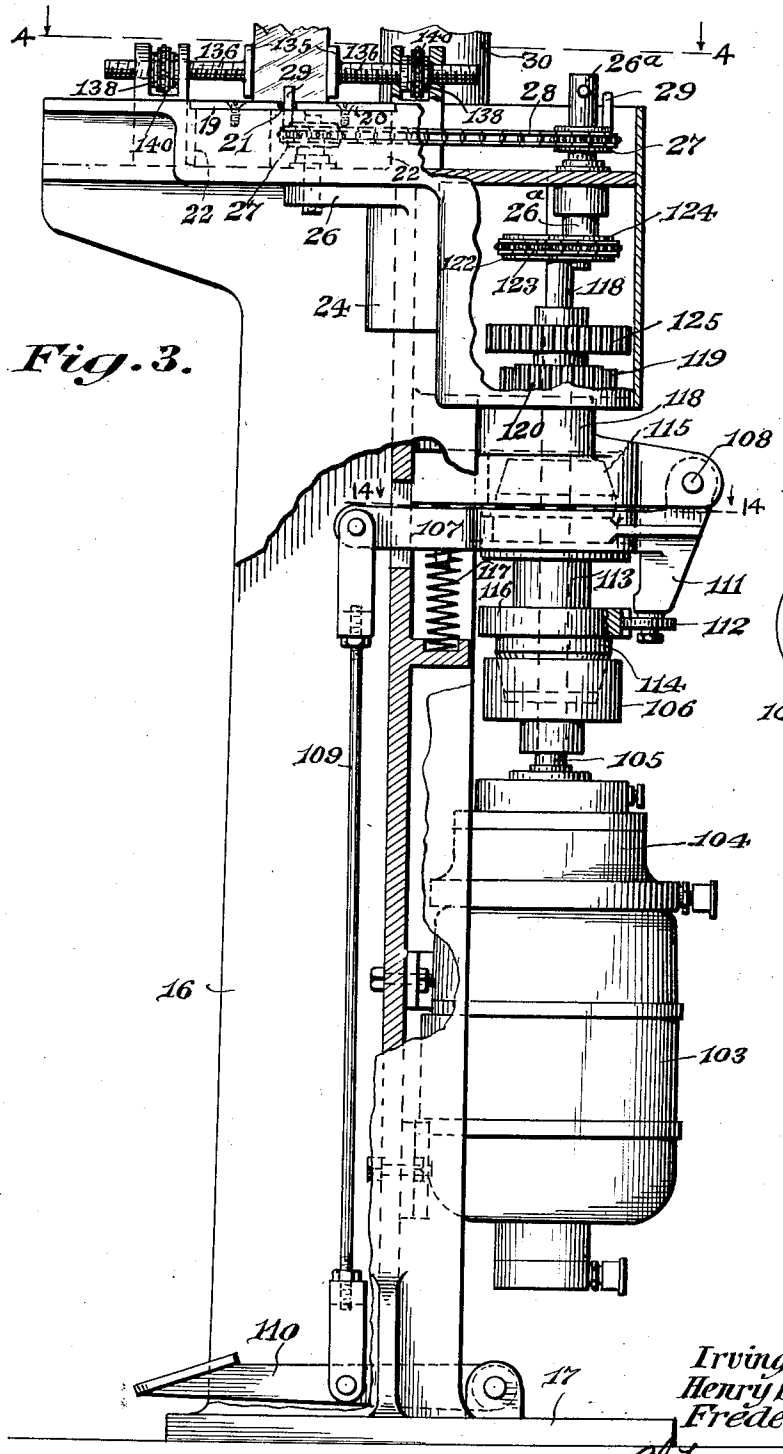

Fig. 3.

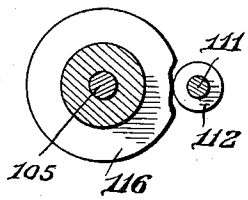

Fig. 13.

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CONTAINER SEALING MACHINE

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Fig. 4.

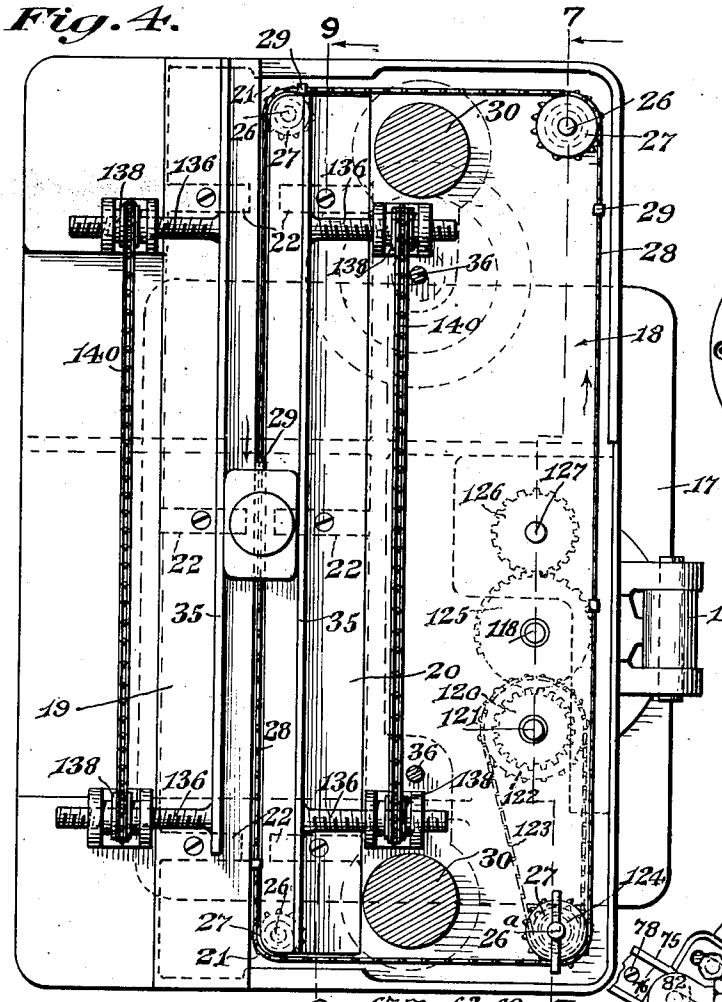

Fig. 10.

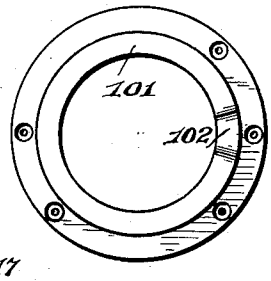

Fig. 12.

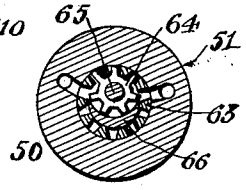

Fig. 11.

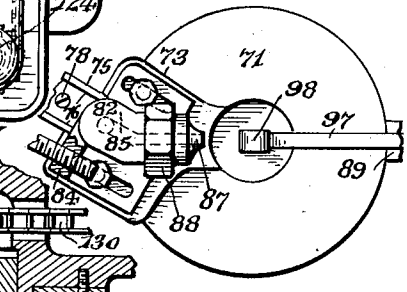

Fig. 8.

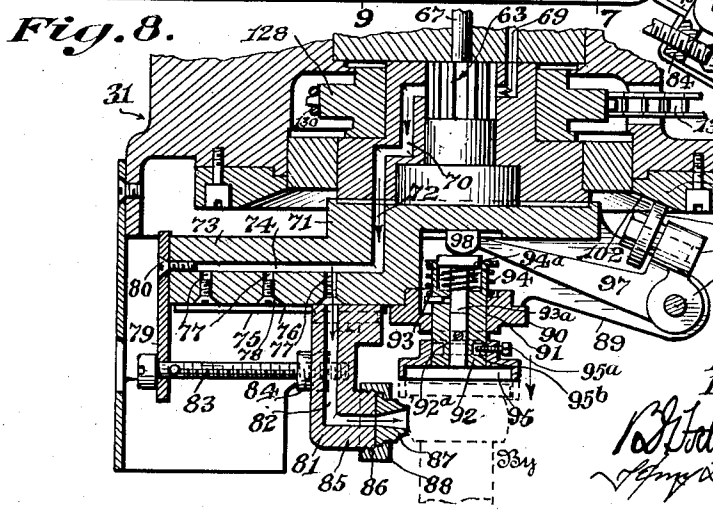

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Fig. 5.

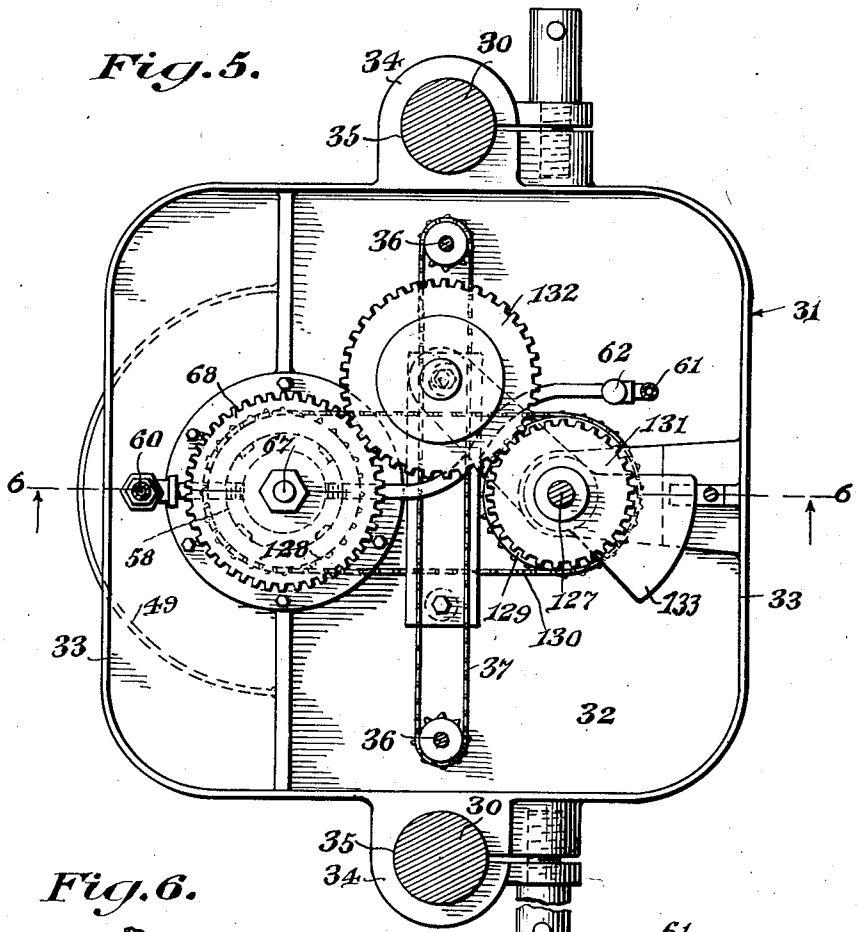
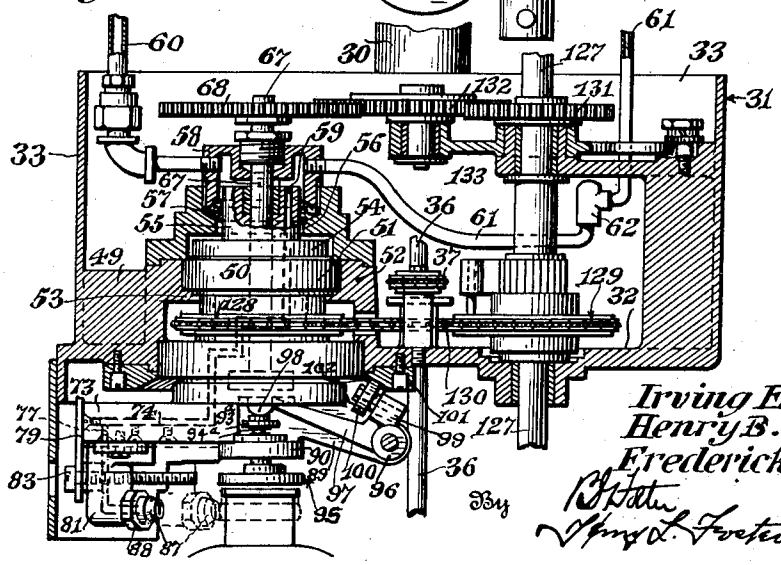


Fig. 6.



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CONTAINER SEALING MACHINE

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Fig. 7.

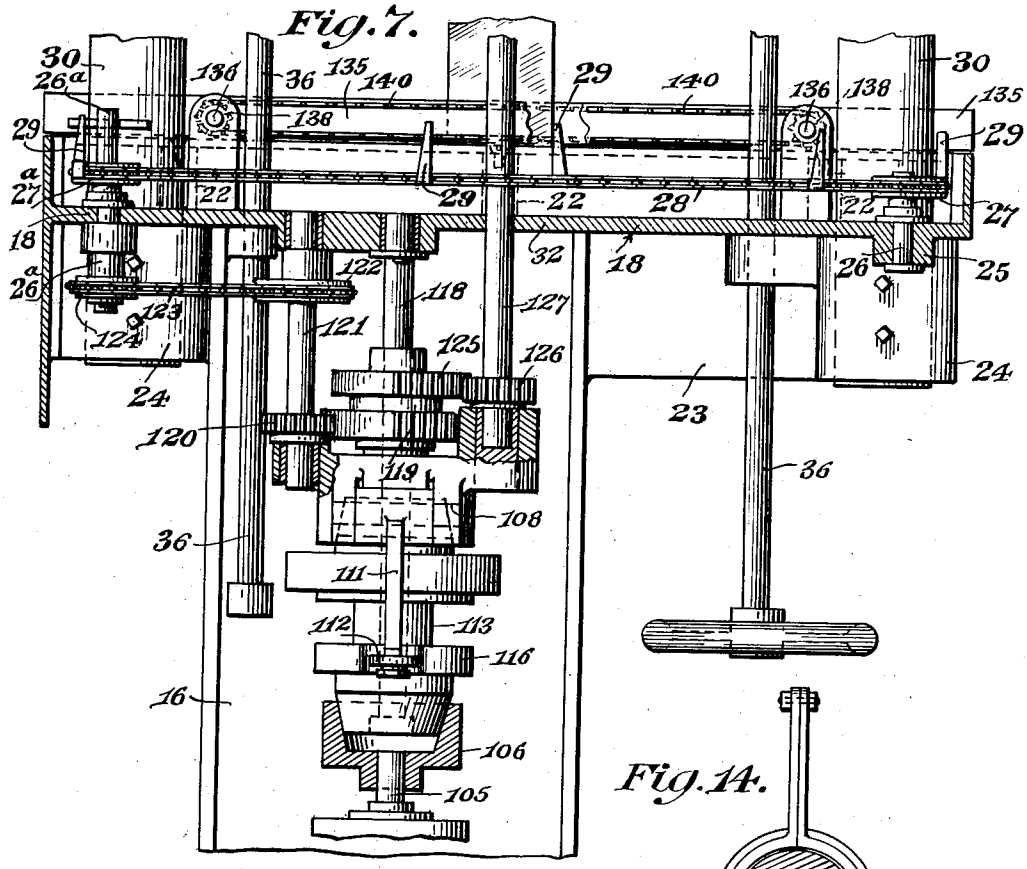


Fig. 14.

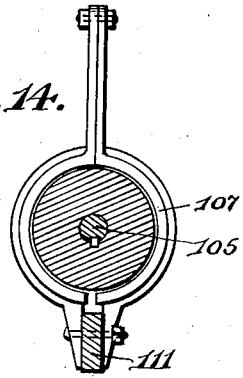
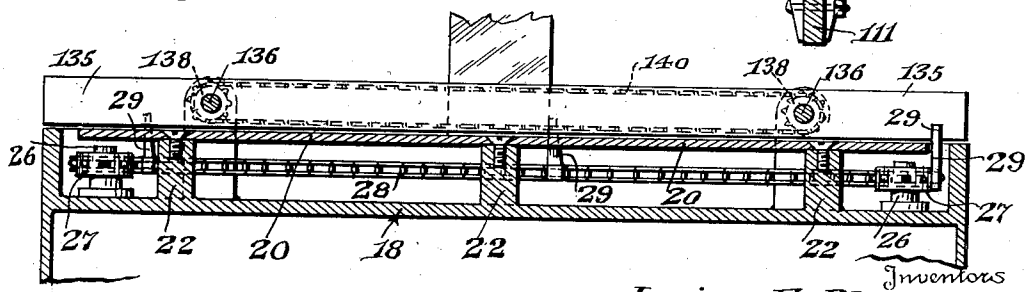


Fig. 9.



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UNITED STATES PATENT OFFICE

2,081,908

CONTAINER SEALING MACHINE

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Application January 5, 1934, Serial No. 705,434

25 Claims. (Cl. 226—80)

The present invention relates to the sealing of bottles and like containers by the application of a viscous sealing fluid about the outside of a portion of the container and its closure over the joint between them.

It is well-known practice in the bottling art to apply a cap of such a viscous fluid to a closed container, such cap completely covering the closure and extending to a point below the edge of the closure and about a portion of the neck of the container. The sealing fluid used has the property of shrinking upon drying, and as it is impervious to air and moisture it forms an extremely effective seal which is widely used to protect substances that are volatile or are subject to deterioration by the influence of air or moisture. The usual method of forming such seals is to invert the closed container and dip a certain part of the neck into a tank of the fluid, thus forming a cap of the material covering the closure and extending down about the neck of the container.

The object of the present invention is to provide a machine for applying a ribbon of sealing material about the joint between the closure and the neck of a container, and particularly a container closed by the well-known cap having a depending skirt which surrounds the neck of the container.

Another object is to provide such a machine that is completely automatic in its operation and that is highly efficient.

Still another object is the provision of a machine which cannot be stopped during the time that a container is being sealed, thereby preventing loss through the partial sealing of containers consequent to such stoppage by the attendant.

In the accompanying drawings:

Figure 1 is an elevation of the machine taken from the rear side thereof.

Figure 2 is a similar view from the front showing a portion of the sealing fluid reservoir in section.

Figure 3 is a side elevation partly in section of the motor and driving connections and the container support and conveyor.

Figure 4 is a top plan view of the mechanism shown in Figure 3, taken as indicated on the line 4—4 of Figure 3.

Figure 5 is a top plan view of the sealing device proper showing the driving means therefor.

Figure 6 is a sectional view taken on the line 6—6 of Figure 5.

Figure 7 is a sectional view taken on the line 7—7 of Figure 4.

Figure 8 is an enlarged sectional view of the measuring pump, the sealing nozzle and the mechanism for clamping containers in position for sealing.

Figure 9 is a sectional view on the line 9—9 of Figure 4.

Figure 10 is a bottom plan view of the cam track which operates the container clamping means.

Figure 11 is a bottom plan view of the sealing mechanism and showing a portion of the clamping means.

Figure 12 is a sectional view of the measuring pump for the sealing fluid.

Figure 13 is a view of the device which prevents stopping of the machine during the operation of sealing a container.

Figure 14 is a sectional view taken on the line 14—14 of Figure 3.

Describing the drawings more particularly, there is an upstanding base 16, having a suitable foot portion 17. At the top of the base 16 is mounted a table-like support 18. Above and spaced from the support 18 are two horizontal plates, designated 19 and 20, separated by a slot 21 and supported by ribs 22 upstanding from the support 18. Extending laterally from the top of the base 16 and underneath the support 18 are flanges 23 terminating in thickened portions 24 for a purpose to be later described. The support 18 is provided with three bearings 25 in which are journaled stud shafts 26 that project above the support 18. A fourth bearing in the support 18 receives a shaft 26a which extends to a point above the support. The portion of the shaft 26a extending above the support 18, serves as a means for adjusting the container feeding device. Upon the shafts 26, 26a, are mounted sprocket wheels 27, the outer edges of which extend beyond the margins of the plate 20.

A sprocket chain 28 is mounted upon the wheels 27 to travel between the support 18 and the plate 20 and outside of the edges of the latter. The chain is driven through the shaft 26a. Fingers 29 are mounted at spaced points upon the sprocket chain 28 and extend upwardly above the top surface of the plate 20. The wheels 27 are so mounted that the chain 28 passes beneath the slot 21, between the plates 19 and 20, and the fingers project up through the slot and travel between the plates, projecting above them.

In the thickened portions 24 are mounted supporting rods 30 extending upwardly to a sub-

stantial height above the support and secured in the enlarged portion by set screws. Slidably mounted on the rods 30 is a support 31 having a horizontal wall 32 and side walls 33 about its edges. From the side walls 33, lugs 34 extend laterally. These lugs 34 are apertured to engage the rods 30, as shown at 35 in Figure 5 and are split so that they may be clamped upon the rods 30 in a well-known manner, to secure the support 31 in vertical position. Threaded rods 36 are revolubly supported by the support 18 and are adapted when revolved, to raise or lower the support 31. In order to secure uniform action by these rods they are connected by a sprocket chain 37 (Figs. 5 and 6) to revolve together.

Above the support 31 and supported by the rods 30 is a reservoir 38 for sealing fluid. This reservoir comprises a tank having a cover 39 adapted to be swung open upon a hinge 40. Within the tank are lugs 41 extending inwardly from the inside of the tank wall for the purpose of supporting an open container 42 in inverted position within the reservoir, as shown in Figure 2. It may here be stated that viscous sealing fluids, such as are intended to be used in this machine, are commonly sold in containers, such as that indicated at 42. These containers may be opened at the top and placed within the reservoir 38 in inverted position, and the fluid will drain into the lower part of the reservoir.

Upon the cover 39 of the reservoir is a T-shaped pipe connection 43 connecting the interior chamber with the atmosphere. Each end of the connection bears a pressure relief valve 44, 45, for relieving any excess pressure which may develop within the reservoir 38, and for permitting air to enter the resevoir to prevent a vacuum being caused by the withdrawal of sealing fluid, respectively.

Below the reservoir 38 and connected therewith by a pipe connection 46 is a feed pump 47 supported upon a cross member 48 secured upon the supporting rods 30. This pump is intermittently driven during the operation of the machine by a motor, through mechanism later described.

Within the walls 33 of the support 31 is an upstanding bracket 49 integral with the bottom wall 32 of the support. Within this bracket is a rotary pump, which may be termed a measuring pump, designated generally by the numeral 50. This pump includes an outer rotary casing 51 (see Figures 6 and 8). The casing 51 has an annular outer extension 52, which engages an inward shoulder 53 formed by the bracket 49. Secured to and supported by the bracket 53 is a collar-like member 54 having an inward shoulder which engages the top of the extension 52 of the casing. The collar member 54 terminates in an upward circular wall 55 surrounding the upper portion of the casing 51. An inward annular shoulder 56 is positioned below the top of the circular wall 55. This shoulder is adapted to support a packing 57. Above the top of the casing 51 is a stationary cap 58 forming a fluid supply gland 59. This supply gland 59 receives sealing fluid from the feed pump 47 by means of a flexible pipe 60, the pipe 60 being flexible to allow for vertical adjustment of the support member 31. From the gland 58 a flexible by-pass pipe 61 having a suitable check valve 62 leads back to the reservoir. The by-pass pipe 61 is provided to allow the return of any excess fluid supplied to the measuring pump by the feed pump 47.

Within a chamber in the casing 51 of the measuring pump 50 is a power-driven pumping rotor. This pumping rotor comprises an internally toothed gear wheel 63 meshing with an externally toothed idler 64 eccentric with the gear wheel 63 and a luna-shaped abutment 66 interposed between the gear wheel 63 and the idler 64 at one side of the gear wheel. The gear wheel 64 rotates on an idler pin 65. From the gear wheel 63 upwardly through the casing 51 and through the cap 58 extends a drive shaft 67 for the gear wheel 63, carrying on its upper end a gear wheel 68 by which it is revolved.

Extending from the gland 59 downwardly through the casing 51, is an intake passage 69 which communicates with the intake of the pumping rotor 63. From the opposite or discharge side of the rotor, a passage 70 extends downwardly to the bottom of the casing.

Secured to the bottom wall of the casing and adapted to rotate therewith is a plate 71 through which is a passage 72 communicating with the outlet passage 70. Integrally formed with the plate 71 and extending to one side thereof is a nozzle bracket 73. This nozzle bracket contains a longitudinal passage 74 communicating with the passage 72. The bottom of the bracket 73 is provided with a channel 75 having dovetail walls 76. A plurality of vertical ports 77, adapted to be closed by plugs 78, communicate between the upper wall of the slot 75 and the passage 74. Upon the end of the bracket 73 and extending below its lowermost point, is a plate 79 secured in position by a screw 80 threaded into the end of the passage 74 and serving also as a plug therefor.

A nozzle 81 is longitudinally slidable in the slot 75 and is supported therein by extensions engaging the dovetail walls 76 thereof. The nozzle 81 has a passage 82 which may be caused to register with either of the ports 77 in the bracket 73 by adjusting the nozzle along the slot 75. The ports 77, which are not in communication with this passage 82, are intended to be closed by the plugs 78. For adjusting the nozzle 81 and securing it in its adjusted position, a screw 83 is rotatably journaled in the plate 79. This screw is threaded through a wing 84 extending from the nozzle, as shown in Figure 11. The nozzle 81 has an offset end portion 85 which is threaded at 86. A nozzle tip 87 is intended to be mounted upon the offset portion 85 by means of a screw thimble 88. The nozzle tip 87 may be replaced by similar tips having various sized or shaped apertures, depending upon the thickness, width, etc. of the ribbon of sealing fluid to be applied to a container to seal it.

Automatic clamping means are provided to hold the container in proper position for sealing. Upon the plate 71 and adapted to rotate therewith is a projecting wing 89 extending in a direction opposite to that of the nozzle bracket 73. Mounted upon the central portion of this wing 89 and also engaging the lower central portion of the bracket 73 is a circular member 90 having a central aperture 91. Mounted for vertical reciprocation in this aperture 91 is a cylinder 92 having a flange about its top against which a spring 94 bears to urge the cylinder 92 to its uppermost position. A pin 93, mounted in the cylinder 92, prevents rotation of the cylinder 92 while in motion, being slidable in a slot in the member 90. (See Figure 8.) The cylinder 92 has a central bore 92*a* in which a headed plunger 93*a* is slidingly mounted. A coil spring 94*a* between the head of the plunger and the cylinder urges them apart and serves to yieldingly transmit

force for forcing the cylinder 92 downwardly. A cup 95 is detachably secured to the bottom portion of the cylinder 92 by means of a set screw 95a threaded through the wall of the cup 95 and engaging in a channel 95b cut into the cylinder 92. This structure permits relative rotation between the cup 95 and the cylinder 92, the cup remaining stationary when engaged with a container cap, in order to avoid marring the same, while the cylinder 92 rotates with the remainder of the assembly. Other cups to suit different sizes or shapes of caps may be substituted therefor. Upon the outer portion of the wing 89 is pivoted a bell crank 96. One arm 97 of this crank terminates in a bearing member 98 adapted to engage the top of the headed plunger 93a and press it downwardly when the crank is operated. The other arm 99 extends upwardly and carries a wheel 100. This wheel 100, as the plate 71 and wing 89 rotate, runs over a stationary cam track 101 (see Figures 8 and 10), secured to and supported by the bottom wall 32 of the support 31. The cam track 101 has a single relatively small dwell 102 located therein.

The operation of this clamping mechanism is as follows. When the pump casing 51 starts its revolution, the cam wheel rides up out of the dwell 102, causing the arm 97 to depress and operate through the plunger and spring to depress the cylinder 92 and consequently the cap 95 upon the container and clamp it securely in position. During the continued rotation of the pump casing and plate 71, sealing fluid is pumped through the nozzle and discharged about the joint between the cap and the neck of the container, and during the complete rotation the container is held clamped as above described. When the rotation is completed and the ribbon of sealing fluid extends completely around the joint, the wheel 100 again reaches the dwell 102 and through the action of the spring 94, rides into it, thus allowing the raising of the cylinder 92 and cap 95 by the spring 94 and releasing the container.

Describing the mechanism for driving the apparatus, 103 designates an electric motor mounted upon the rear side of the base 16. The motor 103 drives, through a reduction gear assembly 104, a vertical drive shaft 105, which extends upwardly in the rear of the base 16. The upper end of the shaft 105 bears one element 106 of a friction clutch, which is operated by a vertically swinging shipper lever 107 fulcrumed at 108 on a projection of the base (see Figures 3 and 7). The end of the shipper lever 107 extends through an opening in the base 16 and is connected by a link 109 to a foot pedal 110, suitably pivoted to the base near the bottom thereof. The shipper lever 107 has a crank arm 111 which carries a wheel 112 revolubly mounted on its end.

A driven shaft 113 is adapted to be engaged with the element 106 by a clutch element 114. The upper end of the shaft 113 carries a braking element 115 which engages a portion of the base 16 when the shipper lever is moved to its upper position. Above the clutch element 114 and below the brake element 115, the shaft 113 bears a rotary cam, designated 116, having a single small dwell therein. The wheel 112 bears against the cam 116 as it revolves, and through the extension 111, holds the shipper lever 107 in its downward position, thus keeping the clutch engaged until the dwell portion of the cam reaches the wheel whereupon the wheel enters the dwell due to the action of a spring 117 which urges the outer end of the lever 107 upward or toward its disengaging position. The shaft 113 drives a shaft 118 concentric therewith, which extends vertically upwards.

At a point above the braking element 115 and below the support 18 is a mutilated gear 119 mounted upon and driven by the shaft 118, and which intermittently drives a gear wheel 120 keyed to a shaft 121 suitably journaled in the base 16 of the support 18. A sprocket wheel 122 is mounted upon the shaft 121 and rotates therewith to drive through a sprocket chain 123, and wheel 124, the shaft 26a journaled in the support 18 and the sprocket wheel 27a carried thereby. Through the mechanism just described, the sprocket chain 28 is given an intermittent movement around its course.

Mounted upon the main shaft 118 above the mutilated gear 119 is another mutilated gear designated 125, the teeth of which mesh with a gear wheel 126 and drive it intermittently. The wheel 126 is secured to and drives a shaft 127 through which the sealing device proper is operated. The shaft 127 extends vertically through the bottom wall 32 of the support 31. The outer wall of the pump casing 51 bears a series 128 of sprocket teeth. Upon the shaft 127 and on a plane with the series of sprocket teeth 128 is mounted a sprocket wheel 129 which drives the casing 51 through a sprocket chain 130 engaging the sprocket teeth 128.

The shaft 127 extends upwardly above the wheel 129, and at a point on a plane with the gear wheel 68 which drives the rotor of the pump 50, is mounted a gear wheel 131 which drives through an intermediate gear 132, the gear wheel 68. The gear wheel 132 is mounted upon a swinging support 133 to allow the substitution of various sizes of gears 68 in order to vary the speed at which the rotor of the pump is driven, and consequently vary the amount of fluid supplied to the sealing nozzle by the sealing of containers of various sizes.

The shaft 127 extends above the side walls of the support 31, and drives through a system of gearing designated generally 134, the feed pump 47 below the bottom of the reservoir 38.

In order to guide containers fed by the chain 28 to a position beneath the sealing device below the center of the plate 71, two fences 135 are positioned upon the plates 19 and 20 parallel to the slot 21. The fences are each adjustable toward or away from each other by threaded studs 136, projecting rearwardly therefrom, respectively. The studs are moved by nuts 138 mounted in brackets secured to the support 18. The nuts 138, are respectively connected by sprocket chains 140 to insure the parallelism of the fences 135.

The operation of the mechanism described is as follows. When the pedal 110 is depressed, the shipper lever operates to connect the shaft 113 to the shaft 105 by means of the friction clutch. Thereupon the cam 116 revolves and the dwell thereof moves away from the wheel 112 which rides upon the surface of the cam, and through the arm 111 locks the shipper lever in its engaged position. As the shaft 118 is moved, the sprocket chain 28 is intermittently moved by reason of the multilated gear 119 and the drive above described. The teeth of the mutilated gears 119 and 125 are so arranged that when the chain 28 is in motion the shaft 127 is at rest. The fingers on the sprocket chain are properly spaced to move a container into position beneath the sealing device proper during the mo-

tion of the chain. By means of the extension of the shaft 26*a*, the position of the fingers 28 may be adjusted, by moving the chain, so that larger or smaller containers will be brought into proper position.

When the container is in position the chain stops and the mutilated gear 125 meshes with the gear 126 to drive the shaft 127 which in turn drives the sealing device. The measuring pump 50 is driven through the gears 131, 132 and 68 and as the shaft 127 begins to revolve the pump begins to operate, supplying fluid to the nozzle. The casing 51 of the pump 50 also begins to revolve, carrying with it the nozzle bracket and nozzle and the container clamping means as above described. As the nozzle revolves about the neck of the container, it deposits a ribbon of sealing fluid about the joint between the cap and the neck of the container. The clamping device operates as the casing of the pump revolves, holding the container in position during the sealing operation and releasing it as soon as the casing 51 has made one complete revolution and a ribbon of sealing fluid has been placed completely around the neck of the container. The various gears are so proportioned that a complete sealing operation takes place during the complete rotation of the shaft 113.

As above pointed out the clutch cannot be released during that period. When the sealing operation is completed, however, the shaft 113 and cam 116 will have completed a revolution and the wheel 112 will ride into the dwell of the cam and thus allow the clutch to be released. Thus the machine cannot be stopped by the operator releasing the pedal 110 during the time when a container is being sealed.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

What we claim, is:

1. In a container sealing device, a container support for locating a closed container with the joint between the container and closure in a predetermined position, means for supplying sealing fluid, and a discharge nozzle receiving sealing fluid from the said means located in a position to deliver said fluid against said joint, said nozzle being rotatable about the joint between the cap and neck of a container upon the container support.

2. In a container sealing device, a container support, a fluid supplying pump having a revoluble member, and a discharge nozzle mounted upon the revoluble member and adapted to discharge fluid supplied by the pump about the joint between the cap and neck of a container to be sealed.

3. In a container sealing device, a container support, a fluid supplying pump above and in axial line with the support and including a rotatable external bottom wall, an inwardly directed discharge nozzle for the pump positioned below and supported by the said bottom wall and revoluble therewith, and means for rotating the bottom wall of the pump.

4. In a container sealing device, a container support, a fluid pump above and in axial line with the support and including an inner pumping member above the central portion of the container support and an outer revoluble casing, driving means for the said pumping member, driving means for the said casing, and an inwardly directed discharge nozzle supported by the casing and revoluble therewith for discharging fluid supplied by the pump about the joint between the cap and neck of a container upon the container support.

5. In a container sealing device, a support for holding a container in upright position, a rotary fluid pump having an inner pumping member and an outer revoluble casing having their axes both above the center of the container placed on the support, separate driving means for the pumping member and the casing respectively, a nozzle bracket mounted upon and extending below the casing and revoluble therewith, and a nozzle having an inwardly directed discharge opening mounted upon the nozzle bracket to revolve therewith and discharge fluid delivered by the pump upon the side of the container and over the joint between the cap and neck of the container upon the container support.

6. In a container sealing device, a container support, relatively rotatable means for discharging sealing fluid under pressure about the cap and neck of a container upon the container support, and means operated by the relative rotation between the container support and fluid discharging means for clamping the container in position upon the container support.

7. In a container sealing device, a container support, a fluid pump having an external rotatable member, means carried by the said rotatable member for discharging fluid supplied by the pump about the joint between the cap and neck of a container upon the container support, and clamping means rotating with the rotatable member of the pump and operated by a stationary cam track surrounding the said member for clamping a container in position upon the container support.

8. In a container sealing device, a container support, a relatively rotatable discharge nozzle adapted to deliver a ribbon of sealing fluid about the joint between the cap and neck of a container positioned upon the container support, a reservoir for fluid sealing material, a feed pump for withdrawing sealing fluid from the reservoir, and a measuring pump for receiving sealing fluid from the feed pump and delivering it in measured quantities to the discharge nozzle.

9. In a container sealing device, a container support, intermittently driven relatively rotatable means for discharging sealing fluid about the joint between the cap and neck of a container in sealing position upon the container support, a conveyor for intermittently advancing containers singly to sealing position, and means for operating the said conveyor only when the means for discharging sealing fluid and the container support are relatively stationary.

10. In a container sealing device, a table-like container support, a relatively rotatable intermittently driven nozzle for discharging fluid under pressure about the joint between the cap and neck of a container in sealing position upon the container support, an intermittently operated conveyor for advancing containers to sealing position upon the container support, and means for operating the conveyor only when the discharge nozzle is at rest.

11. In a container sealing device, a table-like container support, a sealing fluid pump, a dis-

charge nozzle mounted above the container support for intermittent rotation about a container in position upon the container support and adapted to discharge a ribbon of sealing fluid supplied by the pump about the joint between the cap and neck of such a container, means for intermittently advancing containers to sealing position, and means for driving the sealing fluid pump and for rotating the nozzle only when the container advancing means are at rest.

12. In a container sealing device, a container support, a sealing fluid pump, an intermittently rotatable supporting member, a nozzle mounted upon the supporting member and rotatable therewith for discharging sealing fluid supplied by the pump about the joint between the cap and neck of a container upon the container support, a clamping device also mounted on the supporting member and operated during the rotation of said member to clamp a container in sealing position upon the container support, an intermittently operated conveyor for advancing containers to sealing position upon the container support, and means for operating the conveyor only when the rotatable supporting member is at rest.

13. In a container sealing device, intermittently operated container sealing mechanism for applying a ribbon of sealing fluid about the joint between the closure and neck of a container, a continuously operating motor, means releasably connecting the container sealing mechanism with the motor, and means for holding said means against release during the operation of the sealing mechanism.

14. In a container sealing device, a container support, a continuously operating motor, intermittently driven rotatable means for applying during its rotation a ribbon of sealing fluid about the joint between the cap and neck of a container, gearing for intermittently driving the said sealing fluid applying means, a clutch for connecting the intermittent gearing to the motor, operating means for the clutch, and means for holding the operating means to in turn hold the clutch during the rotation of the sealing fluid applying means.

15. In a container sealing device, an intermittently operated fluid pump, a rotary discharge nozzle for applying a ribbon of sealing fluid about the joint, and rotated during the operation of the said pump, gearing for intermittently rotating the pump, a continuously operating motor, a clutch adapted to connect the gearing and the motor, operating means for the clutch, and means including a cam driven by the motor for holding the operating means and thereby the clutch in engaged position until the operation of the fluid pump has ceased.

16. In a container sealing device, a container support, relatively rotatable means for discharging sealing fluid inwardly toward the side of a container placed upon the support and over the joint between the closure and neck of a container upon the container support, means for placing the sealing fluid under pressure, and means other than the pressure producing means for supplying a measured quantity of sealing fluid to the fluid discharging means.

17. In combination, a means for preforming and projecting a ribbon of viscous sealing material, means for supplying material to the said sealing ribbon forming and projecting means, means for supporting a closed container with the joint between the container and closure in the path of the sealing ribbon formed and projected by said means, and means for relatively rotating the container and sealing ribbon forming and projecting means to cause the preformed ribbon to be applied over said joint.

18. In combination, a nozzle for preforming a ribbon of viscous sealing material, means for delivering the sealing material under presssure to the nozzle to cause the preformation of the ribbon and its ejection from the nozzle, means for supporting a closed container with the joint between the container and its closure in line with the nozzle and in the path of the ejected sealing ribbon, and means for causing a relative rotation between the nozzle and container to cause the preformed ribbon to be applied over said joint.

19. In combination, a substantially horizontal nozzle for preforming a ribbon of viscous sealing material, means for delivering the sealing material under pressure to the nozzle to cause the preformation of the ribbon and its ejection from the nozzle, means for supporting a closed container in upright position with the exposed side joint between the container and its closure in line with the nozzle and in the path of the ejected sealing ribbon, and means for causing a relative rotation on a substantially vertical axis between the nozzle and container to cause the preformed ribbon to be applied over said joint.

20. In combination with a support for a closed container having an annular joint between its closure and the container body, a sealing ribbon forming nozzle located substantially radial to the longitudinal axis of a container placed on the support and having its delivery end directed toward and in line with the joint, means for supplying a viscous sealing material under pressure to the nozzle to cause it to be preformed by said nozzle and projected against the said joint, and means for causing a relative rotation between the container and nozzle to cause the ribbon as preformed and projected to be applied around the container and over the joint.

21. In combination with a support for a closed container having an annular joint between its closure and the container body, a sealing ribbon forming nozzle having its delivery end directed toward and in line with the joint, means for repeatedly causing periodic relative rotation between a container on the support and the nozzle to cause the ribbon as preformed and projected to be applied around the container and over the joint, means for intermittently supplying sealing material under pressure to the nozzle during said periods of relative rotation, and intermittently operating means active between said periods to automatically remove the sealed containers and position unsealed containers to be sealed.

22. In sealing apparatus, a support for the container to be sealed, a means for applying sealing material over the joint between the closure and container, means for relatively moving the container and applying means, a supply means communicating with the applying means, mechanism for putting the supply through said means under pressure, and means automatically operating upon the relative movement between the container and applying means for governing the amount of sealing material supplied to the applying means.

23. In sealing apparatus, a support for the container to be sealed, a nozzle for delivering a preformed band of sealing material over the joint between the container and its closure, means for

relatively rotating the container and nozzle to cause the ribbon to be applied over the joint, a reservoir for sealing material, a conduit connecting the reservoir and the nozzle, means in the conduit for causing the sealing material to be delivered under pressure to the nozzle, and means between said pressure creating means and the nozzle for governing the amount of sealing material supplied under pressure to the nozzle.

24. In sealing apparatus, a support for the container to be sealed, a nozzle for delivering a preformed band of sealing material over the joint between the container and its closure, intermittently operating means for relatively rotating the container and nozzle to cause the ribbon to be applied over the joint, a reservoir for sealing material, a conduit connecting the reservoir and the nozzle, a pump in the conduit for causing the sealing material to be delivered under pressure to the nozzle, and means intermittently operable with the rotating means for governing the amount of sealing material supplied under pressure to the nozzle.

25. In a container sealing device, a container support for holding a container in upright position, means rotatable about a container upon the container support for discharging sealing fluid inwardly under pressure about the joint between the closure and neck of the container, and means for clamping the container in position upon the container support and leaving unobstructed the joint between the closure and the neck of the container.

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