

L. W. LOMBARD.
CAN COVER APPLYING MECHANISM.
APPLICATION FILED FEB. 5, 1915.

1,296,537.

Patented Mar. 4, 1919.
5 SHEETS—SHEET 1.

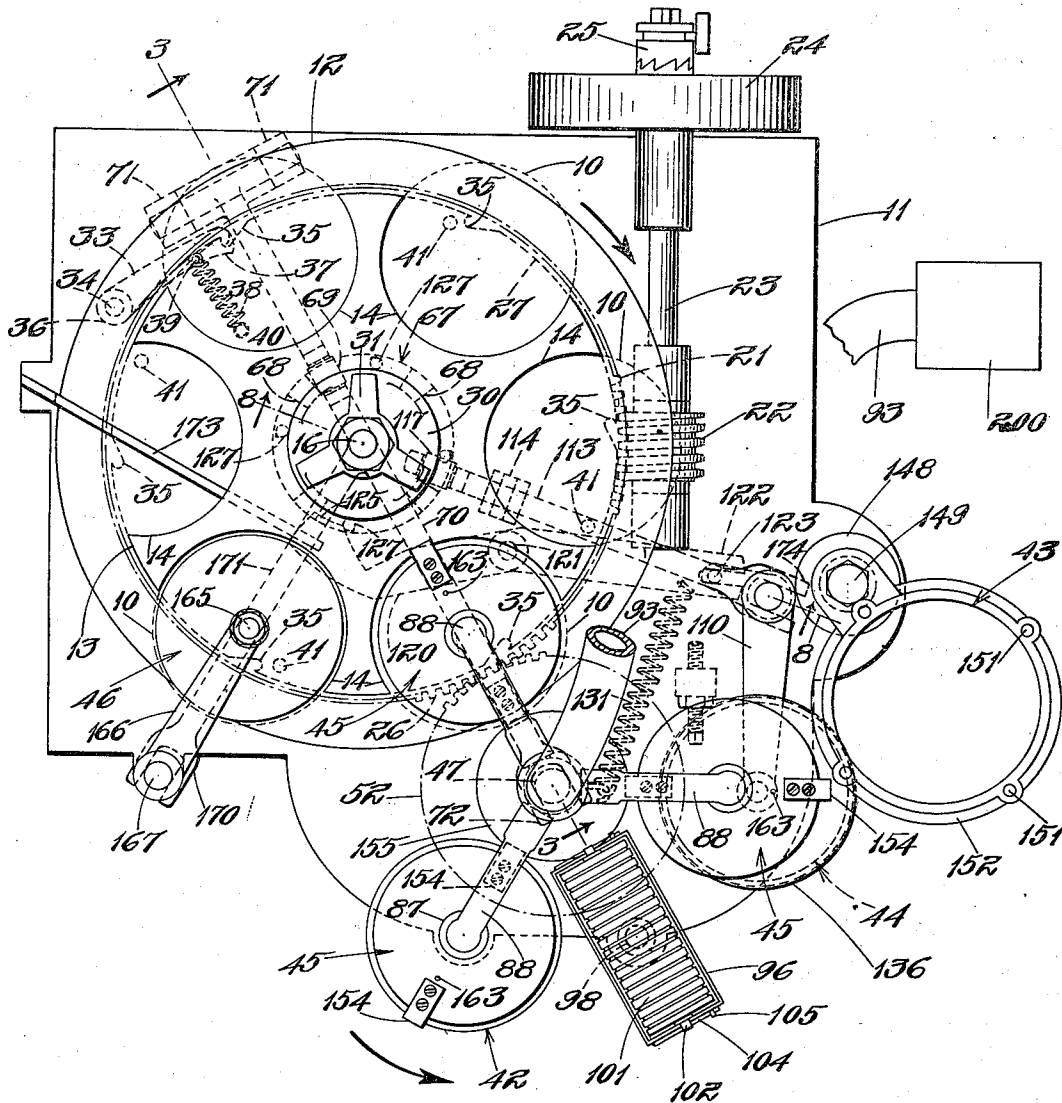


Fig. 1.

WITNESSES:

John H. Parker
Helen M. Purcell

INVENTOR:

L. W. Lombard

by *Mitchell, Calver, Copeland & Baker*
Attys.

L. W. LOMBARD.
CAN COVER APPLYING MECHANISM.
APPLICATION FILED FEB. 5, 1915.

1,296,537.

Patented Mar. 4, 1919.
5 SHEETS—SHEET 2.

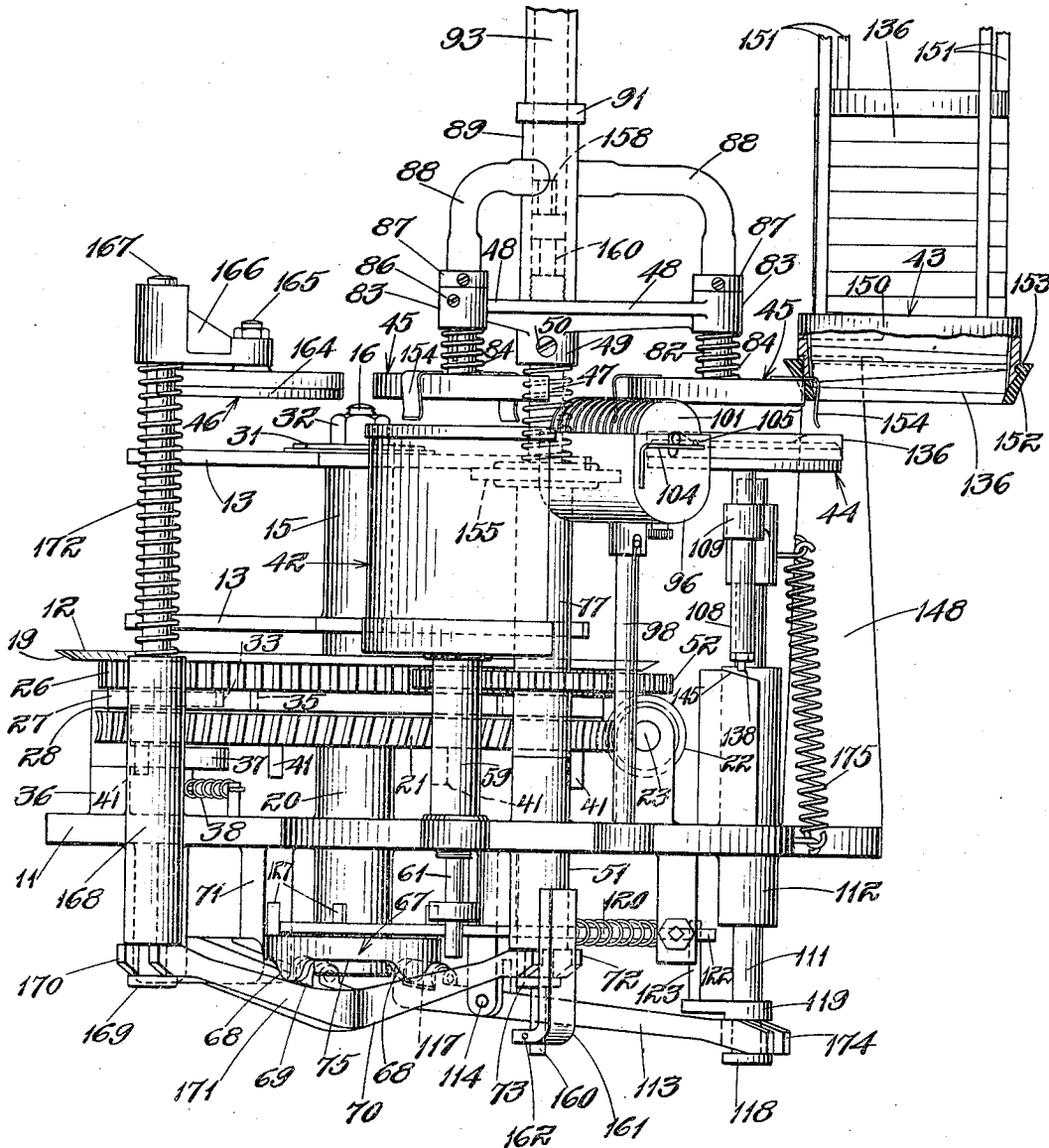


Fig. 2.

WITNESSES:

John H. Parker
Helen M. Russell

INVENTOR:

L. W. Lombard

by *MacLeod, Colman, Copeland & Wike*

Attys.

L. W. LOMBARD.
CAN COVER APPLYING MECHANISM.
APPLICATION FILED FEB. 5, 1915.

1,296,537.

Patented Mar. 4, 1919.
5 SHEETS—SHEET 3.

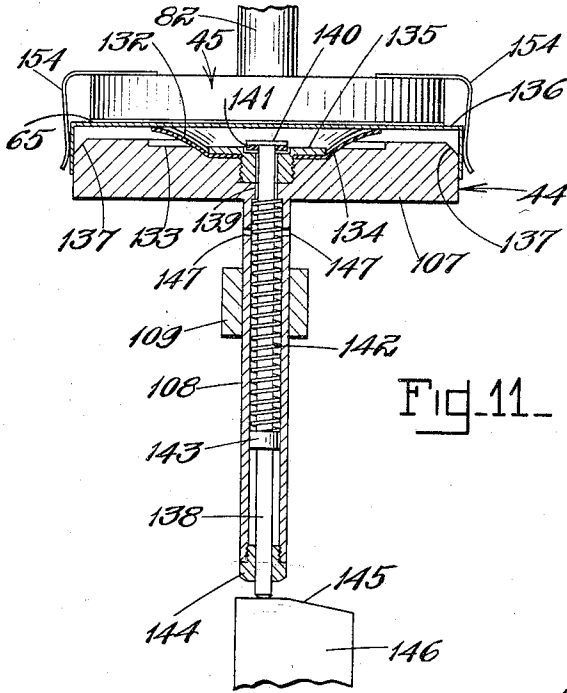


Fig. 11.

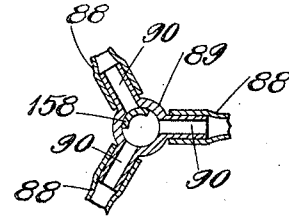


Fig. 13.

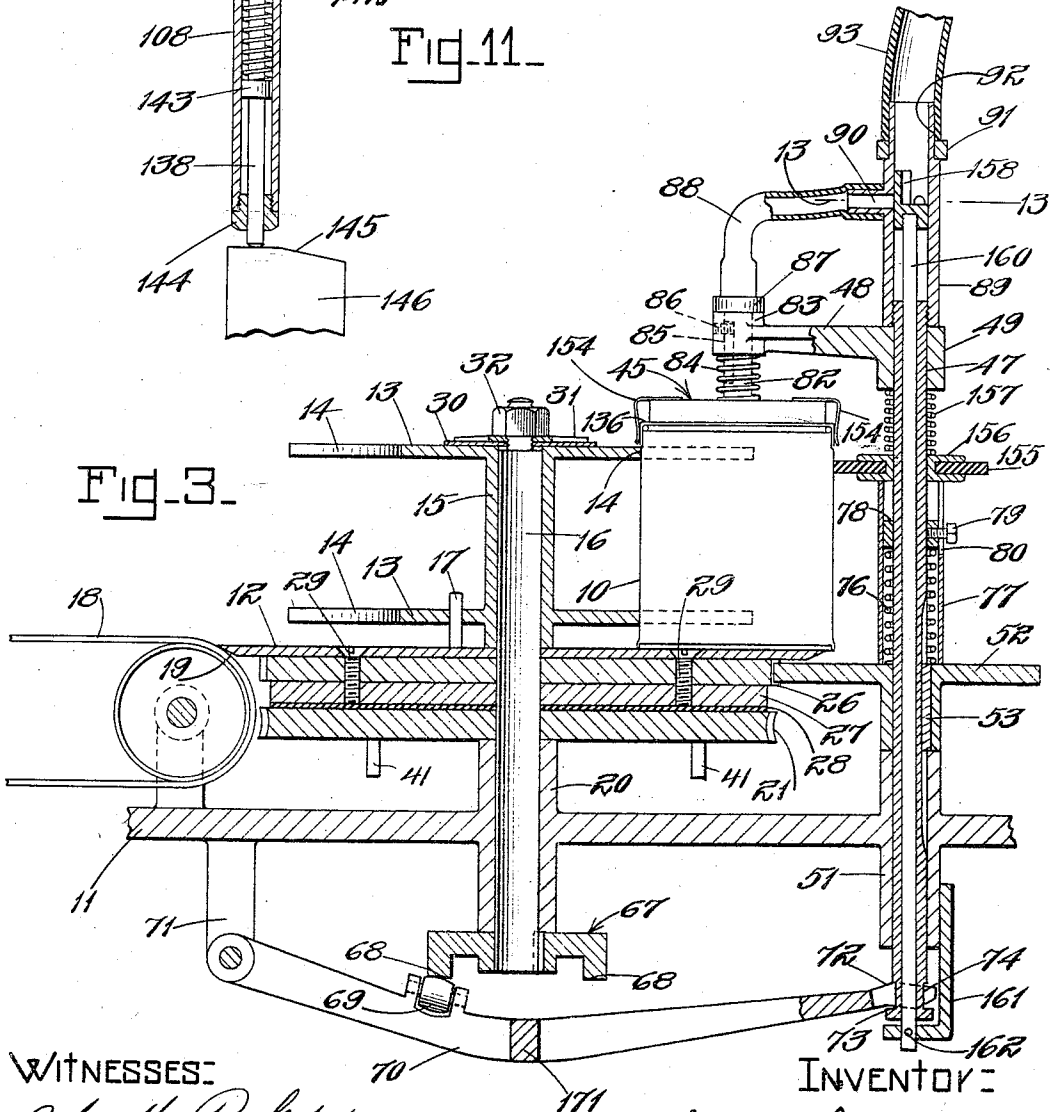


Fig. 3.

WITNESSES:

John H. Parker
John M. Durall

INVENTOR:

L. W. Lombard
by *Truett, Calkins, Copeland & Hild*
Attys.

L. W. LOMBARD.
CAN COVER APPLYING MECHANISM.
APPLICATION FILED FEB. 5, 1915.

1,296,537.

Patented Mar. 4, 1919.
5 SHEETS—SHEET 4.

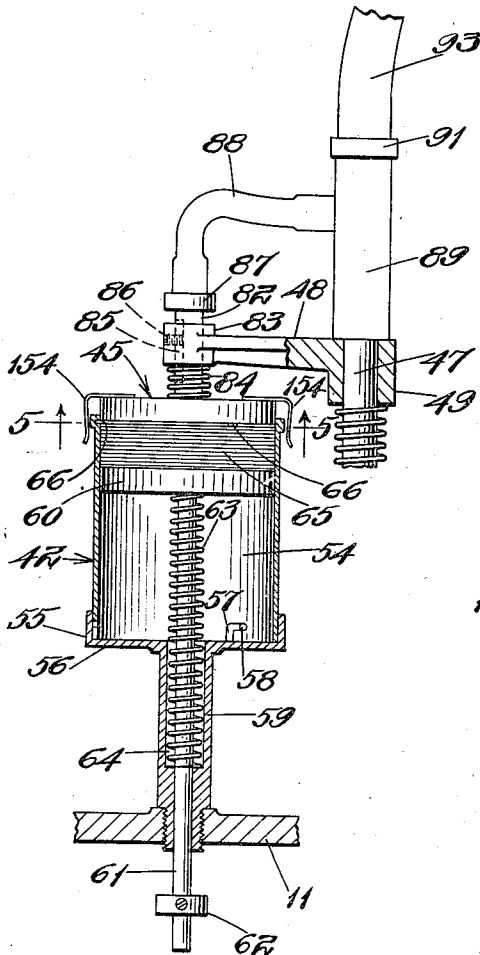


Fig. 4.

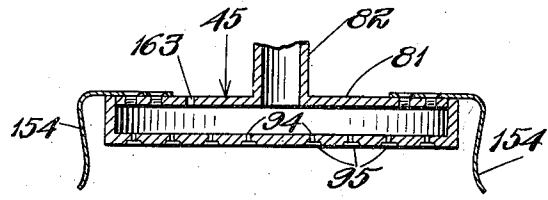


Fig. 6.

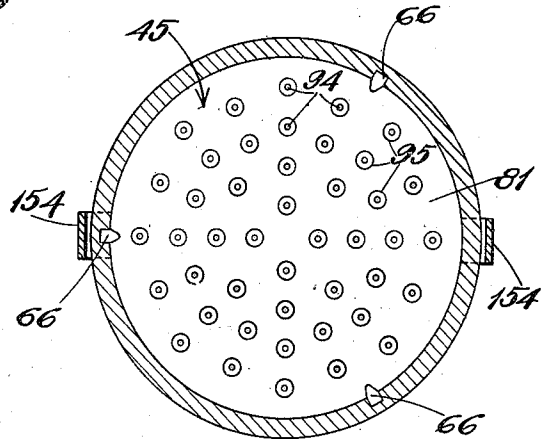


Fig. 5.

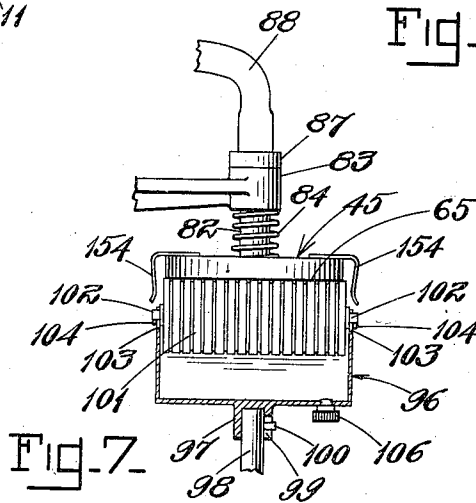


Fig. 7.

WITNESSES:

John W. Parker
Helen M. Purcell

INVENTOR:

L. W. Lombard

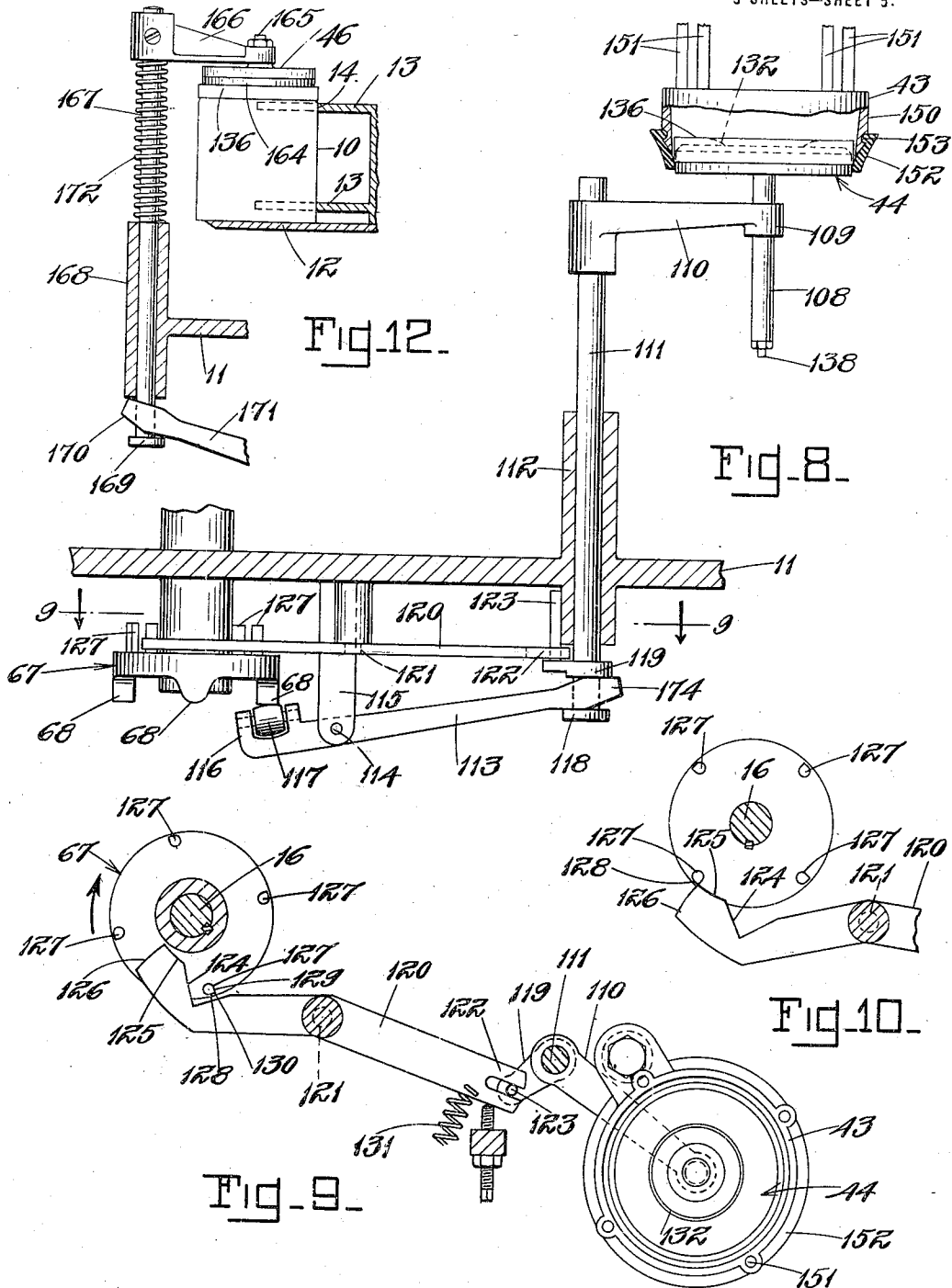
by *Macdonald, Carson, Campbell & White*
Attys.

L. W. LOMBARD.
CAN COVER APPLYING MECHANISM.
APPLICATION FILED FEB. 5, 1915.

1,296,537.

Patented Mar. 4, 1919.

5 SHEETS—SHEET 5.



WITNESSES:
John H. Parker
Helen M. Purcell

INVENTOR:
L. W. Lombard
by *Truesdell, Cator, Connelley & White*
Attys.

UNITED STATES PATENT OFFICE.

LEVI W. LOMBARD, OF WALTHAM, MASSACHUSETTS.

CAN-COVER-APPLYING MECHANISM.

1,296,537.

Specification of Letters Patent.

Patented Mar. 4, 1919.

Application filed February 5, 1915. Serial No. 6,355.

To all whom it may concern:

Be it known that I, LEVI W. LOMBARD, a citizen of the United States, residing at Waltham, county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Can-Cover-Appling Mechanism, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object the production of a machine for placing covers on cans of the type commonly employed to hold coffee, baking powder and the like. The can employed for this purpose is provided with a separate independent cover and the machine embodying my invention is so arranged and constructed that it receives cans after they have been filled and applies covers to them in rapid succession. The device is particularly adapted to act in conjunction with the ordinary can weighing and filling machine thereby eliminating the necessity of placing the covers on the cans by hand as has heretofore been practised so far as known to me.

A further object of my invention is to provide means for securing a suitable label to the can cover while it is being placed on the can and to eliminate the necessity of a separate operation for this purpose.

My invention will be fully understood from the following description when taken in connection with the accompanying drawings and the novel features thereof will be pointed out and clearly defined in the claims at the close of the specification.

In the drawings,—Figure 1 is a top plan view of a machine embodying my invention, a suction pump being indicated in diagram.

Fig. 2 is a front elevation partly in section of the same.

Fig. 3, is a section on line 3—3 of Fig. 1 looking in the direction of the arrows; showing a cover applier head in its lowermost position while applying a cover to a can.

Fig. 4 is a vertical section of the label reservoir with labels therein, one of the heads which conveys the label and cover being shown in a position to pick a label therefrom.

Fig. 5 is a section on line 5—5 of Fig. 4 looking in the direction of the arrows and showing the bottom plan of the head.

Fig. 6 is a vertical section of the head shown in Figs. 4 and 5.

Fig. 7 is a detail partly in section of an

adhesive container and an adhesive applying roll showing the head illustrated in Figs. 4, 5 and 6 in a position to apply adhesive to a label.

Fig. 8 is a detail partly in section showing the cover reservoir, and the cover carrier with mechanism for operating the same, the section being taken on line 8—8 of Fig. 1, but showing the cover carrier in a position to take a cover from the cover reservoir.

Fig. 9 is a detail partly in section showing the cover carrier oscillating mechanism, the cover carrier and the cover reservoir, the section being taken on line 9—9 of Fig. 8.

Fig. 10 is a detail of the cam mechanism illustrated in Fig. 9 showing the position of the parts when the member is at one limit of oscillation.

Fig. 11 is a detail in section on a larger scale showing the cover carrier delivering a cover to the head which conveys the label and cover to the can and showing the cover releasing mechanism with which the carrier is provided.

Fig. 12 is a detail partly in section and on a smaller scale showing a presser head exerting pressure on the cover of a can to give it its final position.

Fig. 13 is a section taken on line 13—13 of Fig. 3.

Having reference to the drawings and particularly to Figs. 1, 2 and 3, there is shown a machine having a suitable frame 11 in which is mounted a rotary holder comprising a base 12 and two horizontal members 13 which are parallel to each other and to the base and separated as shown. About the edges of the horizontal members 13 are oppositely disposed recesses 14 which are substantially segments of a circle of a diameter slightly greater than that of a can 10 and adapted to receive the can and make a relatively snug fit therewith. The horizontal members 13 of the rotary holder are integral with a sleeve 15 loosely mounted about a shaft 16, the base 12 of said holder being shown separate therefrom but secured thereto by a suitable pin 17. The function of the holder is to carry cans delivered to it by a suitable belt conveyer 18 one at a time past the cover applying mechanism and thence to a suitable receptacle. In the machine shown in the drawings the holder is provided with six recesses 14 and its operating mechanism is so arranged that its movement is arrested six times during each

rotation to enable each of the recesses to stop in front of the cover applying mechanism. The belt conveyer 18 is located opposite one stationary position of each of the openings, the base 12 being beveled as shown at 19 to enable the cans to readily pass from the belt to the base and to be received within the recesses.

The shaft 16 on which the rotary holder is located is mounted in a bearing 20 integral with the frame and is driven by a worm gear 21 which meshes with a spiral gear 22 fast on a shaft 23 driven by a pulley wheel 24 mounted loosely on the shaft 23 and connected therewith by a clutch 25 of common form. The spur gear 26 and the worm gear 21 are separated by a pair of disks 27 and 28 mounted loosely about the shaft 16 the former of which is secured to the spur gear by screws 29 and is preferably of metal the latter being of fiber.

The upper end of the shaft 16 is threaded and is provided with a flat washer 30 and a spring washer 31 secured by a nut 32. The spring washer operates to hold the spur gear 26 which is secured to the holder, in frictional contact with the worm gear 21 through the disks 27 and 28 so that the holder will normally rotate with the shaft.

The rotation of the holder is automatically stopped and allowed to start again as predetermined by suitable mechanism consisting of a hooked member 33 pivotally mounted on a pin 34 to which it is rigidly secured and adapted to cooperate with notches 35 in the side of the disk 27 and thereby to arrest the movement of the holder at intervals determined by the location of the notches. The pin 34 to which the hooked member 33 is secured is mounted in a bearing 36 integral with the frame (see Figs. 1 and 2) and is provided with a cam 37 which is also rigidly secured to it and which projects below the worm gear 21 parallel with the hooked member. A spring 38 is secured to the cam 37 by a stud 39 at one end and at the other end to a stud 40 fast on the frame and tends to hold the hooked member 33 against the side of the disk 27 thus causing it to enter a notch 35 to arrest the rotation of the holder. On the worm gear 21 are a plurality of downwardly projecting pins 41 adapted to cooperate with the cam 37 and so arranged about the circumference of the gear that after the holder has been arrested for a predetermined time a pin 41 will engage with the cam 37 and press the hooked member outwardly from a notch 35 thus permitting the holder to rotate to the next notch.

At one side of the holder I provide mechanism for labeling the covers and applying them to the cans which consists in general of a label reservoir 42, a cover reservoir 43, a cover carrier 44, three label and cover applying heads 45 and a presser member 46.

The heads 45 are mounted at equidistant intervals about a shaft 47 on the arms 48 of a spider having a hub 49 secured to the shaft by a set screw 50. The shaft 47 is loosely mounted in a bearing 51 integral with the frame and so arranged that it is adapted to be rotated and to be reciprocated vertically. Rotation is given to the shaft by a gear 52 connected therewith by a key 53 which permits the shaft to be reciprocated relatively to the gear. The gear 52 meshes with the spur gear 27 and has a ratio to it of two to one. This construction causes the heads 45 to rotate about the shaft twice for every rotation of the holder and to stop at intervals in such rotation when the spur gear 27 stops, the parts being arranged so that each one of the heads becomes stationary successively over a pair of recesses 14 in the rotary holder.

The label reservoir 42 (see Fig. 4) is at one side of the shaft 47 and so located that each of the heads 45 become stationary above it during their cycle of rotation. It consists of a cylindrical member 54 having an interior diameter about that of the labels to be applied, the lower end of which snugly fits within the circular flange 55 of a base member 56. It is detachably secured thereto by means of an angular slot 57 which cooperates with a stud 58 projecting inwardly from the flange of the base to form a bayonet joint. The base member has a hollow supporting stem 59 which is threaded into the frame of the machine. Within the cylindrical container 54 I provide a plunger 60 mounted on a rod 61 which extends through the hollow stem 59 to a point below the frame 11 and is provided with an adjustable stop 62. A spring 63 surrounds the plunger rod 61, the lower end of which rests within a pocket 64 in the supporting stem of the base. The labels 65 within the container rest on the plunger 60 and are raised thereby to be picked from the reservoir one at a time by the heads 45 in a manner hereinafter to be described. Stop members 66 are provided which project slightly within the sides of the cylindrical container 54 to prevent the labels from being pushed out of the container by the spring mounted plunger 60.

While the heads 45 are moving about the shaft 47 they are raised above the label reservoir 42 as shown in Fig. 1 and also above the cans 10 in the holder. When, however, the rotating movement is stopped, they are moved downwardly so that the head above the label reservoir 42 is moved into the position shown in Fig. 4 to seize the top label, and the other heads 45 are moved into the position shown in Figs. 3 and 11 as will hereinafter be described. The heads are then elevated to the position shown in Fig. 1 and are again ready to rotate. Suitable mechanism for giving the vertical movement to the heads 45 is provided by means of a

cam 67 (see Figs. 1, 2 and 3) secured to the lower end of the shaft 16 upon which the rotary holder is mounted, having four projections 68 (see also Fig. 8) which cooperate with a roller 69 journaled in an arm or lever 70 pivotally mounted at one end on a bracket 71 which is integral with the frame as shown in Fig. 3. This lever is branched and the straight branch reciprocates the heads while the other branch reciprocates the presser head as will be later described. The free end 72 of the arm is forked and engages a shoulder 73 formed by an annular groove 74 about the lower end of the shaft 47 which projects slightly below the bearing 51. The shaft 16 upon which the cam member 67 is mounted, as stated heretofore is in continual rotation being secured to the worm gear 21. The cam projections 68 about the member 67 are arranged at equidistant intervals and are separated by flat surfaces 75 the member being timed so that when the heads 45 have become stationary the roller 69 rides over one of the cam projections 68 which lowers the shaft 47 and heads 45 secured to it, and permits them to be raised again by a spring 76 which is located within a sleeve 77 and surrounds the shaft between the gear 52 and a collar 78 adjustably secured by means of a screw 79 projecting through a suitable slot 80 in the sleeve 77. The parts are so arranged that when each of the heads 45 are above the label reservoir 42 the downward movement brings it down to the position shown in Fig. 4.

The heads 45 (see Figs. 6 and 11) each consist of a hollow cylindrical disk or plate 81 yieldingly mounted beneath one of the arms 48 of the spider on a hollow stem 82 making a loose fit through a hole in a sleeve 83 integral with the arm 48, said stem being surrounded by a spiral spring 84 interposed between the sleeve 83 and the plate 81. The hollow stem 82 is provided with a longitudinal slot 85 which is engaged by a suitable set screw 86 threaded into the sleeve 83 so that the stem is non-rotatably secured within the sleeve but is permitted to have a vertical movement relatively thereto. The spring 84 exerts a downward pressure against the head, the downward movement being limited by a collar 87 secured about the stem 82 and adapted to contact with the sleeve 83 of the arm. Pipes 88 preferably of flexible hose connect each of the stems 82 with a hollow cylindrical member 89 threaded to the upper end of the shaft and provided with three hose connections 90 one of which is shown in Fig. 3 over the end of each of which a pipe 88 is adapted to be received. The upper end of the cylindrical member 89 is provided with a collar 91, and is reduced in size as shown at 92 to receive the end of a pipe 93 which is also preferably of flexible material and which leads to a

suitable suction device as a vacuum pump 200. The lower surface of the hollow plate 81 comprising the head is provided with a plurality of small holes 94 shown in Figs. 5 and 6. Suction through the hose 88 creates a suction through the head by way of the holes 94 to cause it to pick up the top label in the reservoir and holds the label until the suction is cut off. A port 163 in the heads 45, which is not of sufficient size to appreciably affect the suction through holes 94, operates to destroy the vacuum in the heads when the suction has been cut off and thereby to release the label. I prefer to form a recess 95 on the lower surface of the head about each of the holes 94 in order to enlarge the gripping area of each and thereby to increase the adhesion occasioned by the suction. The mechanism described for producing a vacuum in the head is a convenient one but I do not limit myself to it as other mechanisms within the spirit of my invention may be employed.

Mechanism for applying adhesive to the label is located adjacent the label reservoir (see Fig. 2) and consists of a glue pot 96 having a sleeve in its bottom which is adapted to receive the end of a supporting stem 98 rigidly secured to the frame 11. The glue pot 96 is loosely mounted on the supporting stem 98 so that it may be readily removed and is positioned thereon and held against rotation by means of a slot 99 in the sleeve 97 which is engaged by the pin 100 in the stem. A glue roll 101 is yieldingly mounted on journals 102 received within slots 103 in the sides of the glue pot and resting on flat springs 104, the movement of which is limited by pins 105, said roll being provided about its surface with a series of annular grooves all as shown in Figs. 1, 2 and 7. A suitable plug 106 is threaded into the bottom of the glue pot 96 by the removal of which it may be drained when desired.

The heads 45 rotate about the shaft 47 in the direction shown by the arrow in Fig. 1 and the glue pot 96 is so arranged that after a head has picked up a label from the label reservoir 42 it carries it across the glue roll 101 applying adhesive to it and comes to a stop again on the other side of the glue pot in order to receive a cover from the cover carrier 44 which will now be described.

The cover carrier 44 consists of a circular disk 107 (see particularly Figs. 8 and 11) supported on a hollow stem 108 mounted within the sleeve 109 of an arm 110 and detachably secured thereto in any suitable manner. The arm is mounted on a shaft 111 journaled in a bearing 112 integral with the frame of the machine. The cover carrier operates to carry covers, one at a time, from a suitable cover reservoir 43 to be described, to each head after it has passed over the glue pot and become stationary. To accomplish

this, the cover carrier swings on its axis toward the cover reservoir 43 and during the latter part of this movement rises to take a cover therefrom. It then reverses this movement and returns to the proper position to deliver the cover to whichever head is in a position to take it. The mechanism for effecting this operation consists of a lever 113 pivoted at 114 to a bracket 115 integral with the frame, having an angular forked end 116 in which a roller 117 is journaled, and adapted to contact with the cam surfaces 68 of the cam member 67. The lower end of the shaft 111 is received within the bifurcated end 174 of this lever which is interposed between a head 118 and an arm 119 on the shaft so that a movement of the bifurcated end 174 of the lever in one direction by means of the cam 67 and in the other direction by a suitable spring 175 secured at one end to the hub of the arm 110 on the shaft and at the other end to the frame causes the shaft to be reciprocated. The shaft 111 is also oscillated (see Fig. 9) by a lever 120 which is pivoted at 121 to the frame and is forked as shown at 122 to receive a pin 123 rigidly secured to the arm 119 on the shaft which together with the arm 110 forms a rock shaft. The pin 123 is of sufficient length to engage the slot at all times during the vertical movement of the shaft. The other end of the lever 120 is provided with cam surfaces 124, 125 and 126 which cooperate with pins 127 spaced at equidistant intervals about the edge of the upper surface of the member 67. As will be seen from Figs. 9 and 10 of the drawings, the pins 127 are not cylindrical but are substantially pear shaped in cross section as shown the surfaces 128 and 129 adjacent the point 130 being on an arc somewhat similar to the cam surface 125 of the lever. The cam surface 124 of the lever is at a substantial angle to the path of movement of the pins 127 which rotate in a direction shown by the arrow in Fig. 9. The cam surface 125 of the lever is formed on an arc of a circle having a radius the same as that on which the contact surfaces of the pins 127 travel. As the pins revolve one of them comes in contact with the surface 124 of the lever causing the latter to move about its pivot 121 and thereby swing the cover carrier about the shaft 111. When the cover carrier 43 has come to the proper position the pin passes on to the arc shaped surface 125 and the lever remains stationary so long as the pin is on this surface. At this time, the cover carrier is directly beneath one of the heads 45 which is then stationary, and the rest in the movement of the cover carrier is provided to give time for the head to descend and take the cover from the carrier. The further travel of the pin 127 carries it off the arc shaped surface 125 of the lever and on to the end

surface 126 of the lever which is so shaped as to allow the lever to be moved back, a suitable spring 131 being provided for this purpose. The end surface 126 of the lever, is slightly convex and arranged so that the cover carrier 43 must move gradually back to the limit of its movement of oscillation. This construction is important for the shape of the pins 127 is such that they hold the cover carrier directly beneath a head 45 to a predetermined time after which the cover carrier is gradually moved out from under the head with a smooth movement which is devoid of undesirable jerks.

The cover carrier 14 (see Fig. 11) is provided with means for seizing a cover from the cover reservoir 43 and delivering it to a head 45 which consists in general of a vacuum cup 132 and means for breaking the vacuum therein. For this purpose, I provide the disk 107 with a recess 133 within which is a second recess having beveled edges 134 and a hole in the center thereof which is threaded to receive the correspondingly threaded portion of a washer 135. The vacuum cup 132 is secured between the washer 135 and the disk 107 and is of very soft flexible material, such as rubber, so that when pressed against the under surface of a cover 136 the air within the cup is expelled and a partial vacuum is formed when the parts are lowered. Thereby the cover is seized by the cover carrier. The disk 107 of the cover carrier is beveled as shown at 137 and is of such a shape that a cover 136 of the type of can which the machine is intended will loosely fit over it as shown in Fig. 11. If then the disk is pressed within the cover, the suction created by the vacuum cup 132 will cause the cover to stick to the head until the vacuum is destroyed. I provide a suitable valve for breaking the vacuum which consists of a rod 138 passing through the hollow supporting stem 108 of the disk and through a hole 139 in the disk and the washer member 135. The rod is provided with a head 140 beneath which is a washer 141 adapted to seat in a recess in the washer 135. The hole through the washer and disk is slightly larger than the valve stem 138 so as to freely permit the passage of air around it when the washer is off its seat. A spiral spring 142 around the stem 138 and interposed between the disk and a suitable collar 143 secured to the stem tends normally to seat the valve. The lower end of the supporting sleeve 108 of the cover carrier is filled with a threaded plug 144 having a hole in it through which the stem 138 projects. When the cover carrier is directly beneath one of the heads 45, the end of the valve stem contacts with a fixed cam surface 145 on a bracket 146 integral with the frame of the machine which raises the valve from its seat and allows air to pass

into the vacuum cup by way of suitable ports 147 in the side of the supporting sleeve 108.

The cover reservoir 43 (see Figs. 1 and 2) is secured to an upright 148 integral with the frame at one side of the heads 45 by means of a bolt 149 which is threaded into the upright, thus enabling the holder to be secured in any position desired. The reservoir consists of a hollow cylindrical member 150 which is open at both ends and is provided about the circumference of its upper end with a plurality of upright rods 151. The inside diameter of the upper end of the cylinder 150 is slightly greater than that of the cover 136 to be handled by the machine, the inner surface converging downwardly so that the inside diameter of the lower end is slightly less than that of the upper end, being just large enough to allow for the passage of a cover. The uprights 151, which are preferably four in number, are adapted to hold a stack of covers 136 which are nested as shown in Fig. 2. In order to provide suitable means for preventing the covers from falling through the holder and for insuring the delivery from the holder to the cover carrier 44 of only one cover at a time, I provide what I term a curtain 152 about the lower end of the cylindrical member 150 which extends slightly below the cylindrical member and converges inwardly over a beveled portion on the said cylindrical member so that the diameter of the curtain at its lower end is slightly less than that of the covers. The curtain 152 is of suitable expansible material such as rubber so that it snugly fits about the lower end of the cylinder 150 being provided with an inwardly projecting rib 153 which engages a corresponding groove in the cylinder. When the lower cover 136 is pulled down through the lower end of the holder, the curtain expands to permit it to pass and wipes along its sides thereby preventing the next adjacent cover passing through the opening.

While I have shown in the drawings a rubber curtain, it will be evident that any suitable yielding member or series of members contacting with the edge of the cam cover may be employed to support the stack of covers and while I prefer to use the form shown, I do not limit myself to it.

The holder is positioned so that the cover carrier is directly under it at one limit of its oscillation, the operating mechanism being timed so that the cover carrier 44 is pushed upwardly by the lever 113 within the curtain 152 of the holder and against the lowermost cover 136 therein, as shown in Fig. 8 of the drawings. The vacuum cup 132 is flattened out against the inner surface of the cover 136 and when the cover carrier descends it creates a suction which pulls the lowermost cover out of the holder,

the curtain operating to prevent the other covers from following. The action of the vacuum cup in picking the bottom cover out of the cover reservoir is particularly satisfactory because if the lowest cover happens to be in a somewhat oblique position the vacuum cup will nevertheless seize hold of it and after the cover has passed through the curtain will cause it to assume a position in the horizontal plane properly placed to be delivered to one of the heads. When necessary, I employ a weight to retain the covers in position when the vacuum cup is pressed against the lowermost of them.

The disk 81 of each of the heads 45 is provided with spring clips 154 which snugly fit over the cover when the cover carrier and a head 45 come together, as shown in Fig. 11, and operate to draw the cover 136 off of the cover carrier, the vacuum having been destroyed in the vacuum cup 132 by the cam surface 145 and valve mechanism in the manner described above. I do not limit myself to this means for holding the cover onto the head.

The head 45 carrying a label 65 and cover 136 stops directly above a can 10 in the rotary holder, and the downward movement of the heads 45 by means of the lever 70 causes the one with the label and cover to place the cover on the can, too great pressure being prevented by the yieldingly mounted stem 82 on which each head is supported. I employ a member, as for instance a wheel having a soft rubber rim 155 secured in a hub 156 loosely mounted on the shaft 47 to press the can well into the recess 14 in the holder and insure its being properly centered beneath the cover. A light spring 157 interposed between the hubs 49 and 156 is employed to prevent the wheel from moving up and down with the shaft.

During the revolution of each of the heads 45 and during the reciprocatory movement of each, while above the label reservoir 42 and in the position to receive a cover from the cover carrier 44, a suction in the pipe 88 is created by the vacuum pump 200. While a head is placing the cover on the can however I provide some suitable means for cutting off the suction through its pipe 88 in order to prevent the label and cover to which it has adhered from being lifted off of the can again by the head as it rises. This consists of a valve member 158 which fits snugly within the member 89. The shaft 47 has a hole extending longitudinally therethrough in which a stem 160 loosely fits and which is threaded into the valve at its upper end and is secured to an angular bracket 161 fast on the bearing 51 at its lower end by a suitable pin 162. The valve is thus stationary and is preferably so arranged that it extends above and below the hole through the pipe connection 90 when the shaft 47

and head are lowered as shown in Fig. 3 but does not cover the hole when the shaft and heads are raised and ready to revolve as for example in the position shown in Fig. 2.

- 5 When the suction is cut off by the valve 158 and the cover is applied to the can, the port 163, described above, destroys the vacuum in the head and allows the cover and adhered label to remain on the can.
- 10 Adjacent the rotary holder, I provide a presser member 46 (see Figs. 1, 2 and 12) which is adapted to press the label onto the cover smoothly and seat the cover firmly on the can if this has not been done by the heads
- 15 45. This comprises a cylindrical disk 164 of soft rubber having a supporting member 165 secured to an arm 166 which is in turn secured to the upper end of a slide-rod 167. The slide-rod is slidably mounted in a guide
- 20 168 integral with the frame and its lower end projects through the guide and has a head 169 which contacts with the forked end 170 of an arm 171 of the lever 70 previously referred to. The shape of this lever
- 25 is shown clearly in plan in dotted lines in Fig. 1. A suitable spring 172 interposed between the arm 166 and the guide 168 tends normally to hold the presser head 46 in elevated position.
- 30 Means for removing the covered cans from the rotary holder are provided by an ejector 173 (see Fig. 1) which is rigidly secured to the frame 11 and is so arranged that the rotation of the holder operates to slide the covered can out of the recess in the holder into
- 35 a suitable receptacle, conveyer or the like not shown.

- The operation of the machine is as follows: The filled cans are fed successively
- 40 into one of the six recesses in the holder and are gradually rotated in the direction of the arrow shown in Fig. 1 and conveyed one at a time to the position under the appropriate cover applying head 45. The heads revolve
- 45 twice to one rotation of the rotary holder stopping three times during each revolution, one head being over the label reservoir, another being in a position to receive a cover from the cover carrier, and the third being
- 50 over the can in the holder. The heads then descend, the one to the label reservoir, another to the cover carrier, and the third to the can. When the head is over the label reservoir, the valve 158 is open which permits suction in the pipe 88 so that the upper
- 55 label in the label reservoir adheres to the head. The heads then rise and revolve to the next position and the head having the label wipes it over the adhesive applying roll 101 and stops in its next position. It then descends and receives a cover from the cover
- 60 carrier, and forces the cover between the clips 154 with which each head is provided. The cover carrier moves from this position to the cover reservoir where it gets a cover by
- 65

the suction mechanism hereinabove described and moves back to the position to deliver the cover to the head during the time that the head is moving from the label reservoir into the position to take the cover. When 70 the head and cover carrier are together the valve in the vacuum cup is opened by the fixed cam surface 145 and releases the cover. The members then separate, the cover carrier moving to get another cover and the 75 head which carries the cover and label moving to the next stationary position above the can. When the head becomes stationary it descends to place the cover with its label on the can, and during this movement the suction in the head created by the vacuum pump is cut off so that when the head rises the cover is left on the can. The rotary holder then carries the can to the next stationary position beneath the presser head which descends, pressing the label on the cover and pressing the cover firmly down on the can. At the next movement of the holder the can is shunted out of the recess by the ejector and the recess is ready to receive another 90 can from the conveyer.

The rotary holder in the machine shown is provided with six recesses for cans, the number of heads being three for convenience of operation. I however do not wish to limit 95 myself to this particular construction for obviously the capacity of the holder and the operating mechanism therefor and for the heads as well as other details of construction may be varied without departing from the 100 scope of my invention.

What I claim is:

1. In a can covering machine, the combination of a can support, a cover carrier, mechanism for reciprocating said cover carrier, and means for moving the said cover carrier in a plane other than that in which it is reciprocated to cause it automatically to take a cover from the said reservoir and carry it to the said applicator, mechanism for 110 reciprocating said cover applicator, and means for moving the same in a plane other than that in which it is reciprocated to cause it automatically to take a cover from the said cover carrier, carry it to a can on the said 115 support, and apply it to said can.

2. In a can covering machine the combination of a can support, a cover applicator, a cover reservoir, a cover carrier, mechanism for reciprocating said cover carrier 120 away from and against a cover in said cover reservoir, and means for thereafter oscillating said cover carrier away from said cover reservoir to a position to be taken by said cover applicator. 125

3. In a cover applying machine, the combination of a can support, a cover applicator, cover gripping mechanism thereon, a cover reservoir, a cover carrier, suction mechanism for gripping a cover on said carrier, means 130

for automatically releasing a cover from said carrier, mechanism for reciprocating said carrier, and means for moving the same in a plane other than that in which it is reciprocated to cause said carrier to take a cover from said reservoir and convey it to a position to be taken by said cover applier, mechanism for reciprocating said cover applier, and means for moving it in a plane other than that in which it is reciprocated to cause it to take a cover from said cover carrier, move with it to a can on said support and apply it thereto.

4. In a machine of the character described, the combination of a rotating holder for cans which stops at intervals during its rotation, a revolving cover applier with cover gripping mechanism thereon which stops at intervals during each revolution one of said periods of rest being when above a can on said holder and another of said periods of rest being when in a position at one side thereof, a cover reservoir, a cover carrier oscillatably mounted to convey a cover from said cover reservoir to said cover applier when in a position at one side of a can in said holder and reciprocably mounted to move toward and away from the cover reservoir to take a can cover therefrom.

5. In a machine of the character described, a rotating holder for cans which stops at intervals during its rotation, a label reservoir and an adhesive applying device, a revolving cover applier which stops at intervals during its rotation above a can while said holder is stationary, and above said label reservoir, said adhesive applier being located adjacent said label reservoir and the path of revolution of said cover applier, a cover reservoir, a cover carrier movably mounted to convey a cover from said cover reservoir to a point adjacent said adhesive applying device, said cover applier being provided with label gripping mechanism and with cover gripping mechanism, and being arranged to stop above said label reservoir when in its position adjacent said adhesive applying device and to reciprocate toward and away from said holder, said label reservoir and said cover carrier when in a position above each and means for giving said reciprocation to the said cover applier to cause it to pick up a label from said label reservoir, wipe it over said adhesive applying device, pick up a cover from said cover carrier and apply the label and cover to a can.

6. In a machine of the character described,

a rotating holder for cans which stops at intervals during its rotation, a label reservoir, an adhesive applying device, a revolving cover applier which stops at intervals during each revolution once above a can in said holder while the holder is stationary, once above said label reservoir and once at a point at one side of said holder and said adhesive applying device, said adhesive applying device being located adjacent the path of revolution of said applier, a cover reservoir, a cover carrier movably mounted to convey a cover from said cover reservoir to a point adjacent that at which said applier stops when adjacent said adhesive applying device, label and cover gripping mechanism on the said cover applier, means for reciprocating said applier to and from said label reservoir, said can holder and said cover carrier when in a position adjacent each whereby said cover applier picks up a label from said reservoir, wipes it over the adhesive applying device, picks up a cover from said cover carrier and applies the label and cover to a can, and a presser acting upon the label and cover after the cover has been placed on a can.

7. In a machine of the character described, the combination with a can support of an alternately revolving and reciprocating head having suction holes therein, and gripper members thereon, means for producing a suction in said head, a label reservoir adjacent the path of revolution of said head into which it reciprocates to remove therefrom a label by means of the suction mechanism, a cover carrier operating adjacent the path of revolution of said head against which the said head reciprocates to place said label on said cover and to grip the said cover by means of the gripping mechanism, and thereafter to apply the said labeled cover to a can.

8. In a machine of the character described, the combination with a can holder of a traveling cover applier, comprising a head having holes in the surface thereof with which the cover contacts, means for creating a suction therethrough, and a spring about the edge of the head to assist in holding the cover in place against the head.

In testimony whereof I affix my signature in presence of two witnesses.

LEVI W. LOMBARD.

Witnesses:

GEORGE P. DIKE,
ALICE H. MORRISON.