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PATENTED SEPT. 17, 1907.

B. W. TUCKER.

MACHINE FOR APPLYING LABELS AND THE LIKE TO BOTTLES AND OTHER ARTICLES.

APPLICATION FILED JULY 13, 1905.

8 SHEETS—SHEET 1.

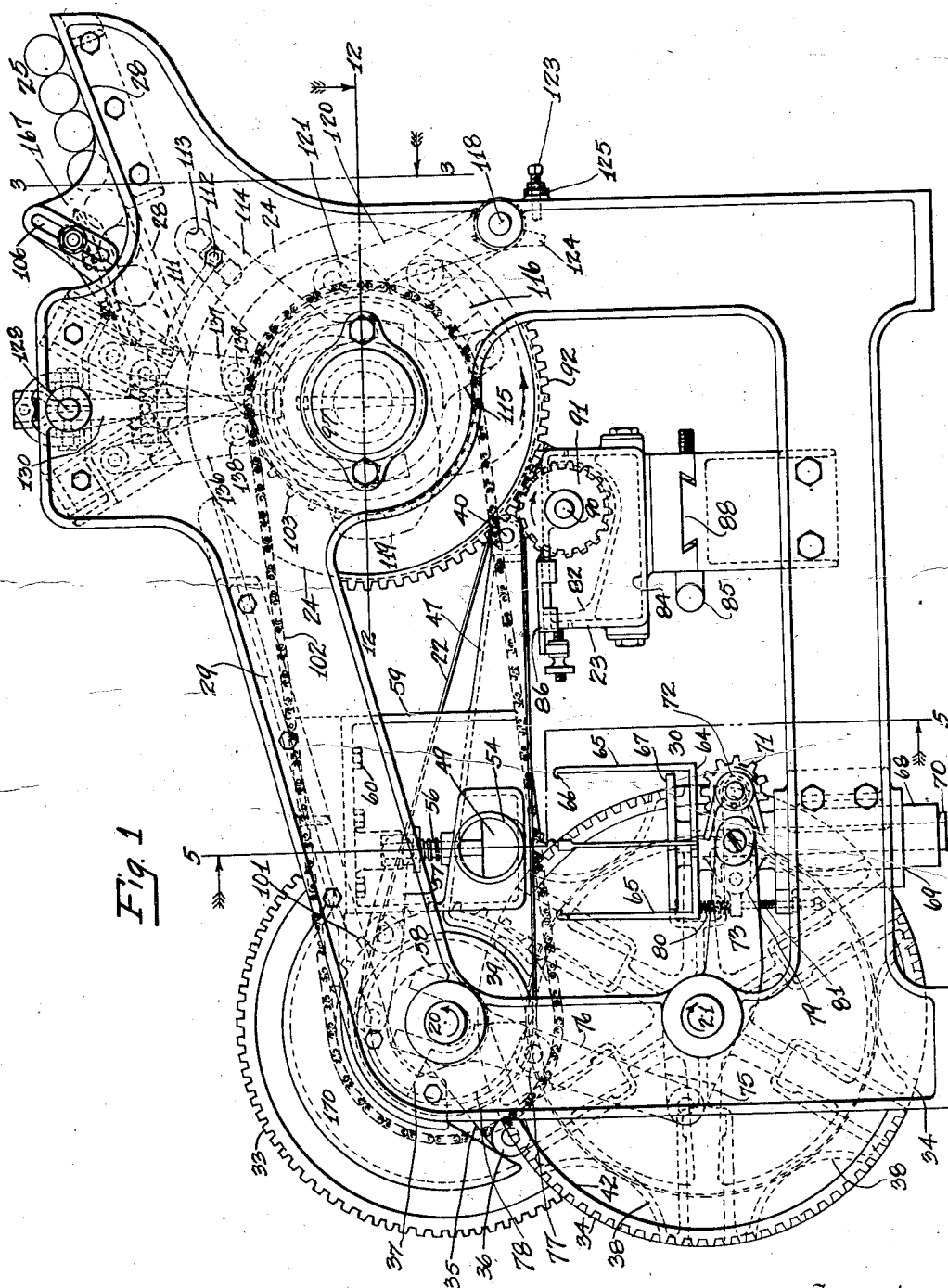


Fig. 1

Witnesses
George R. Schuck.
L. Mansford Compton

Inventor
Benjamin W. Tucker.
By his Attorney Chas. C. Gill

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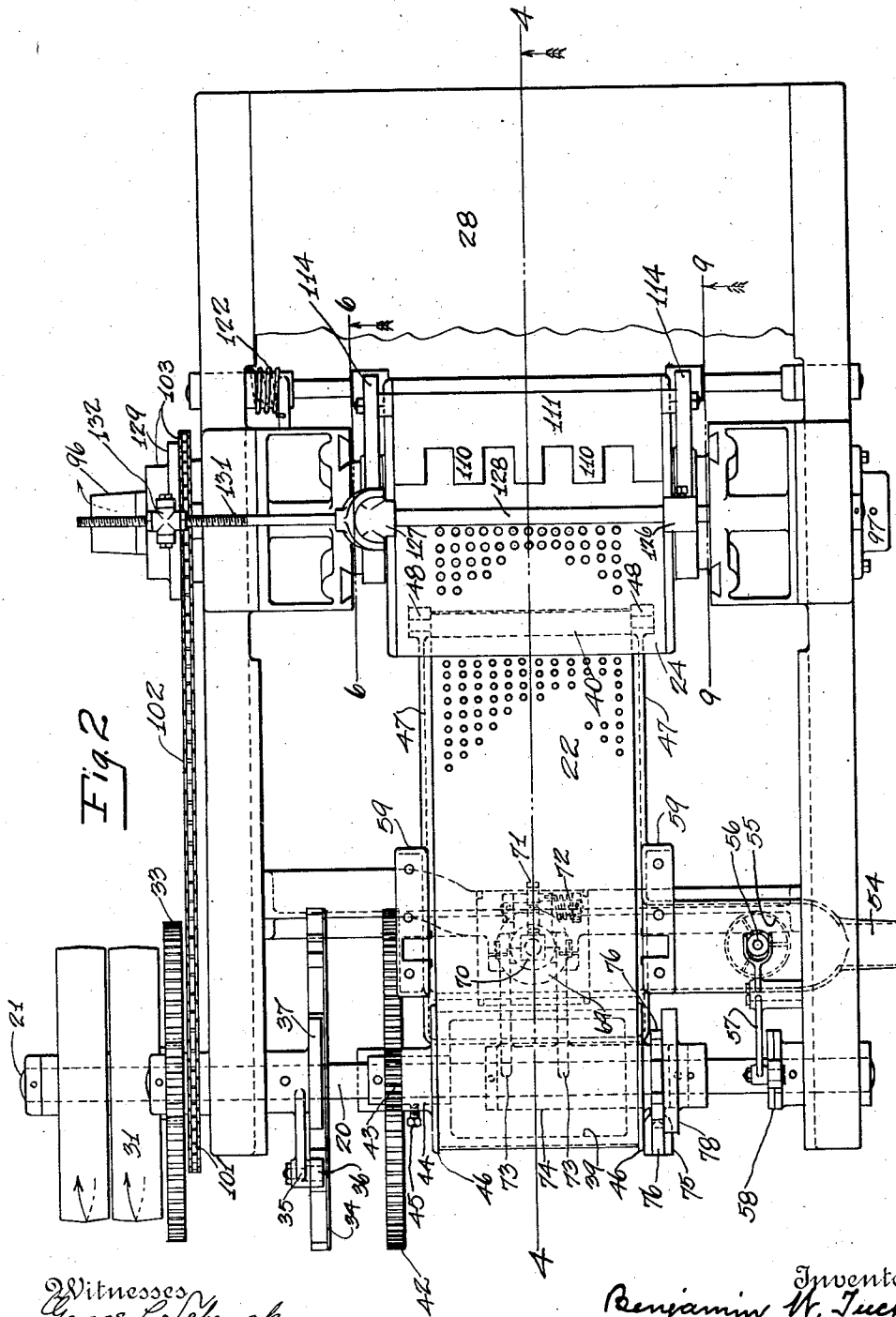
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Witnesses
George R. Schenck.
R. Ramsford Compton.

Inventor
Benjamin W. Tucker,
By his Attorney Chas. C. Gill

No. 866,091.

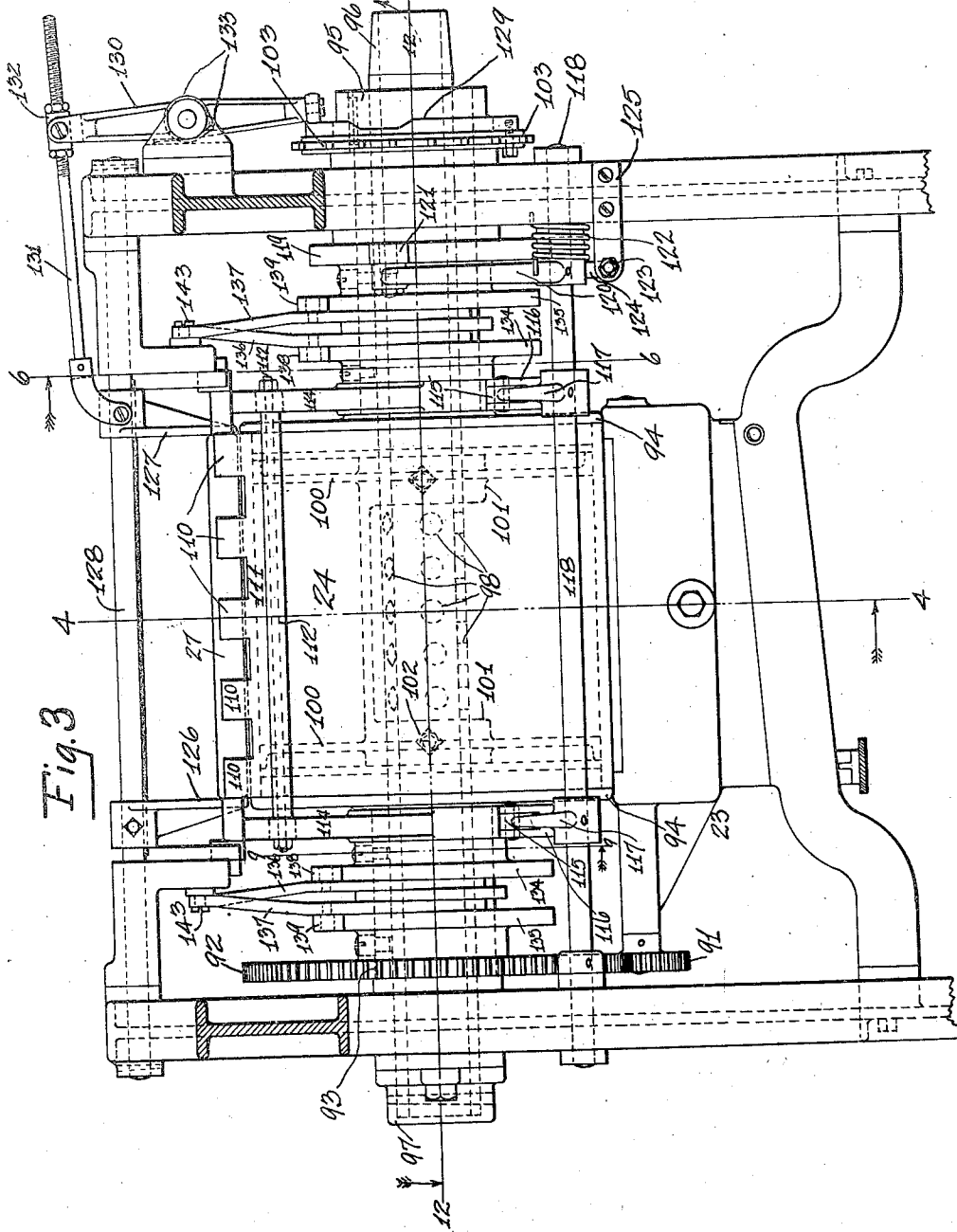
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Witnesses
George L. Schenck.
L. Mansford Compton

Inventor
Benjamin W. Tucker
By his Attorney Chas. O. Gill

No. 866,091.

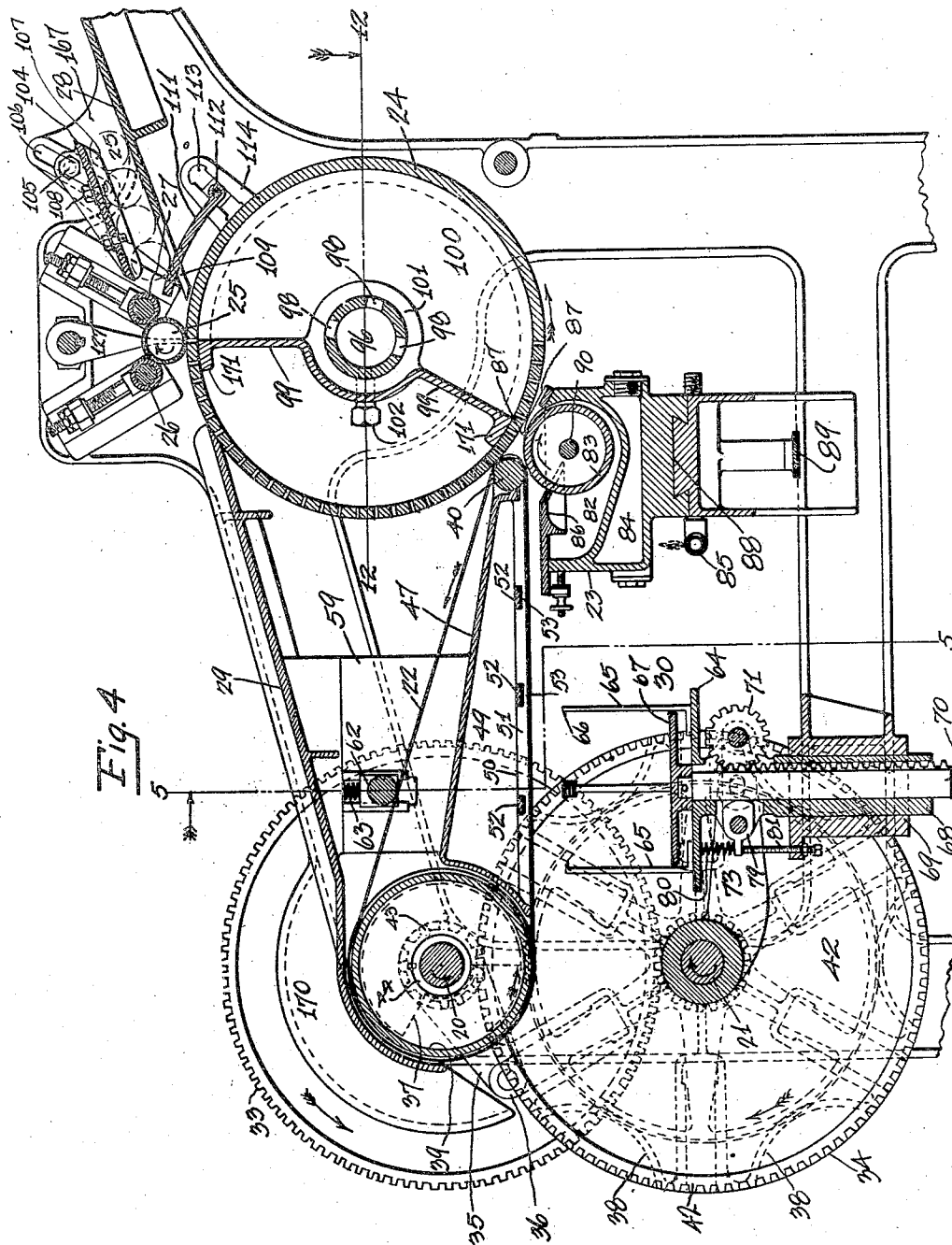
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8 SHEETS—SHEET 4.



Witnesses
George R. Schenck.
L. Ramsford Compton

Inventor
Benjamin W. Tucker,
By his Attorney Chas. O. Gill

No. 866,091.

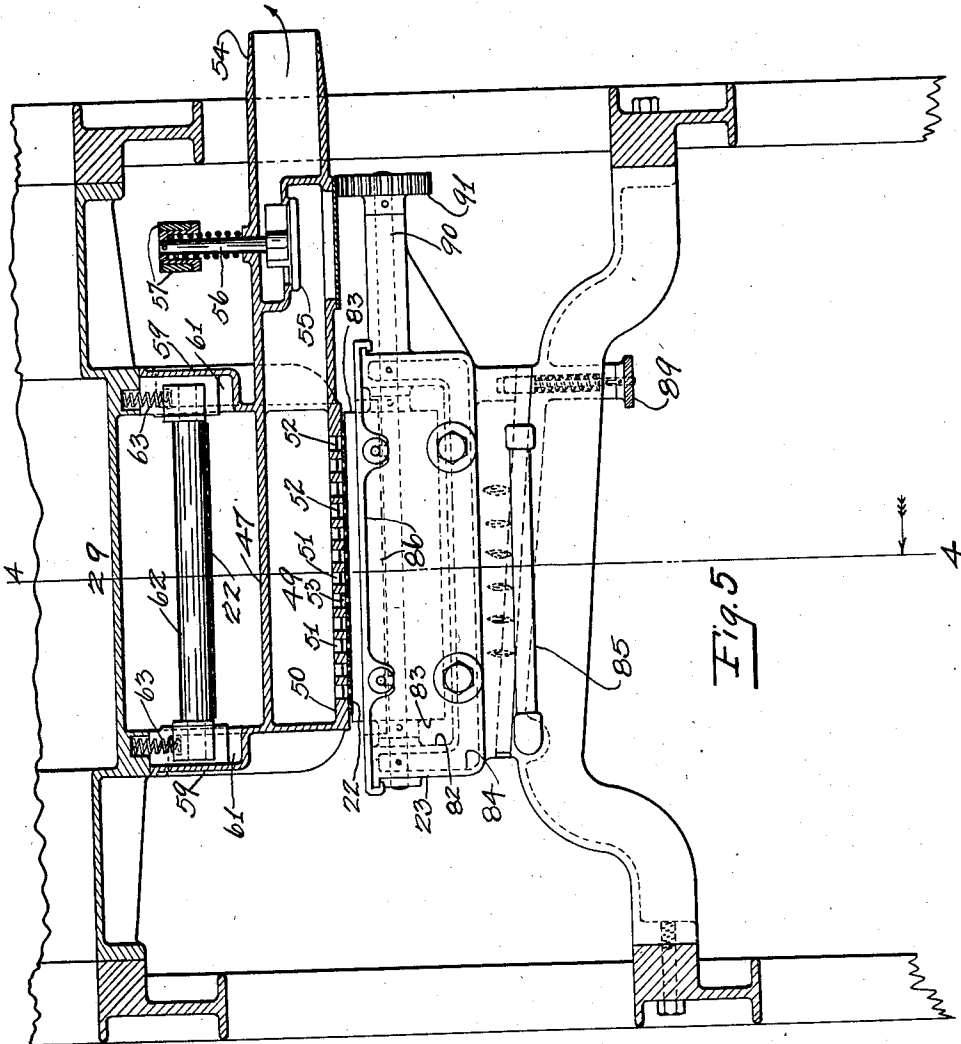
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8 SHEETS—SHEET 5.



Witnesses
George R. Schenck.
L. Bradford Compton

Inventor
Benjamin W. Tucker,
By his Attorney Chas. C. Gill

No. 866,091.

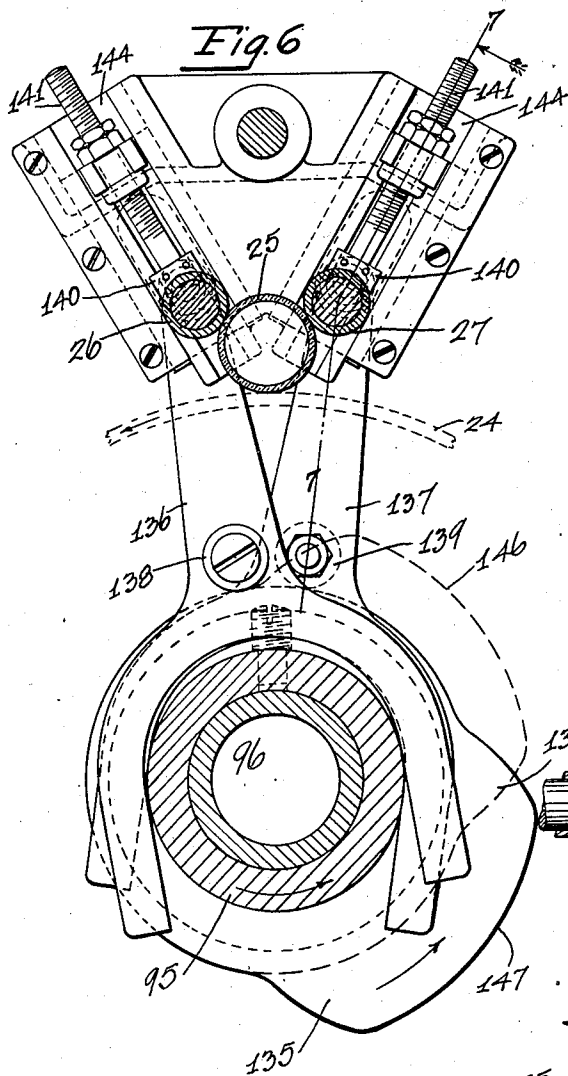
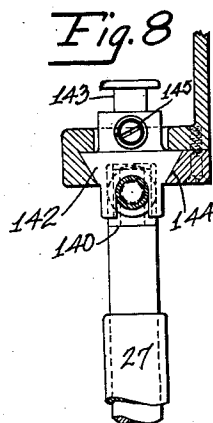
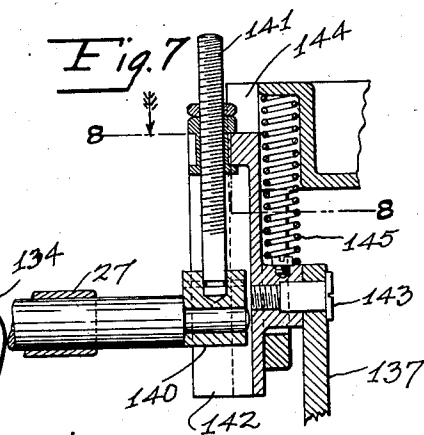
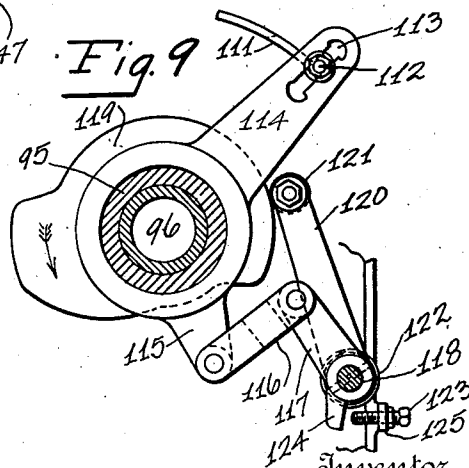
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8 SHEETS—SHEET 6.



Witnesses
George L. Schneck.
L. Ramsford Compton

Inventor
Benjamin W. Tucker,
By his Attorney Chas. O. Gill

No. 866,091.

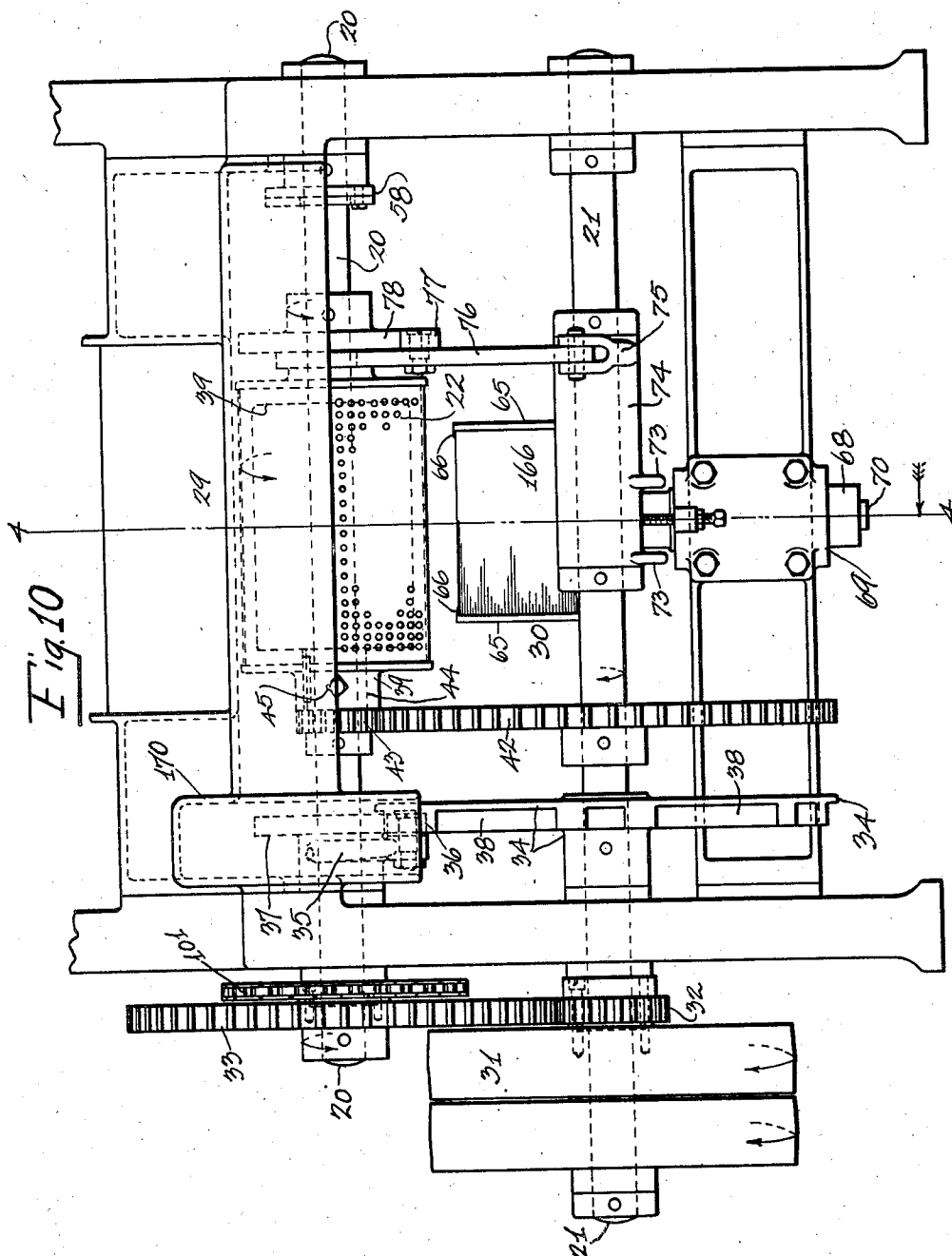
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8 SHEETS—SHEET 7.



Witnesses
George R. Schenck.
L. Remond Compton

Inventor
Benjamin W. Tucker.
By his Attorney Chas. C. Hill

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8 SHEETS—SHEET 8.

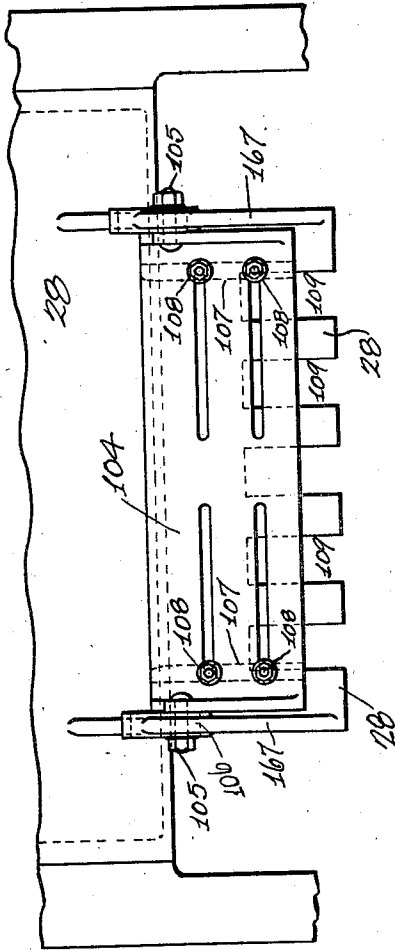


Fig. 11

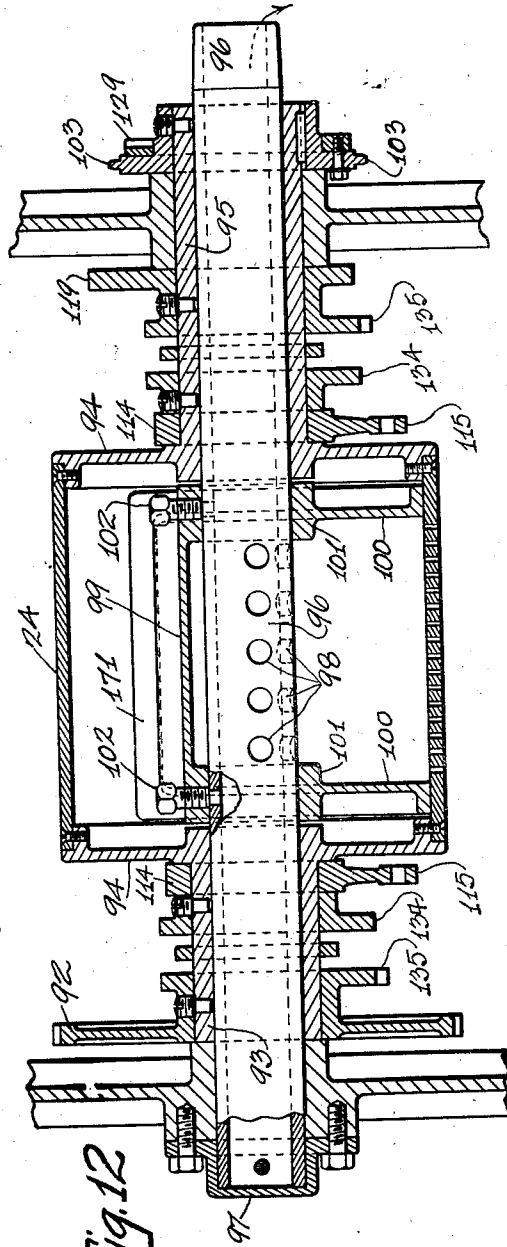


Fig. 12

Witnesses
George L. Schenck.
L. Ransford Compton

Inventor
Benjamin W. Tucker.
By his Attorney Chas. E. Yeil

UNITED STATES PATENT OFFICE.

BENJAMIN W. TUCKER, OF NEWARK, NEW JERSEY.

MACHINE FOR APPLYING LABELS AND THE LIKE TO BOTTLES AND OTHER ARTICLES.

No. 866,091.

Specification of Letters Patent.

Patented Sept. 17, 1907.

Application filed July 13, 1905. Serial No. 269,447.

To all whom it may concern:

Be it known that I, BENJAMIN W. TUCKER, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Applying Labels and the Like to Bottles and other Articles, of which the following is a specification.

The invention relates to improvements in machines for applying labels and the like to bottles, cans and other articles, and consists in the novel features, arrangements and combinations of parts hereinafter described and particularly pointed out in the claims.

In its preferred form the machine of my invention comprises a traveling perforated belt or apron, means for creating air suction through the perforations thereof, means for applying the labels, one after another, to said belt to which they become attached by said air suction, means for applying paste to the exposed surface of the labels, and a rotary drum for receiving the labels from the said belt and pasting mechanism and delivering the same to the bottles or other articles, said rotary drum having perforations in its surface and being connected with means for exhausting the air through the same, whereby the labels taken by the drum are smoothly and evenly held and conveyed to the bottles or other articles upon which they are to be applied.

The machine of my invention also comprises novel means for feeding and holding the bottles or other articles while they are being rolled at a given point on said drum into the labels carried by the latter.

The machine of my invention is new in its general combinations and in many of its individual parts, and is applicable for applying labels or wrappers to various articles in addition to bottles, to which I specifically refer as illustrative of the utility of my invention without meaning thereby to limit the invention only to use in applying labels to bottles.

The object of the invention is to provide an efficient machine for rapidly, smoothly and evenly applying labels to bottles, cans and the like and which may be adjusted to suit the varying diameters of the bottles or cans.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Figure 1 is a side elevation of a machine constructed in accordance with and embodying the invention; Fig. 2 is a top view, partly broken away, of same, the superposed feed and delivery chutes for the bottles having been omitted; Fig. 3 is a vertical section through a portion of the machine on the dotted line 3-3 of Fig. 1, this figure being substantially an end view looking at the right hand end of the machine as represented in Fig. 1; Fig. 4 is a vertical section of the machine on the dotted line 4-4 of Fig. 2; Fig. 5 is a vertical transverse section through a portion of the machine on the dotted

line 5-5 of Fig. 1; Fig. 6 is an enlarged vertical section through a portion of the machine on the dotted line 6-6 of Fig. 2, the line of the rotary drum being denoted by dotted lines; Fig. 7 is a section of a portion of the machine on the dotted line 7-7 of Fig. 6; Fig. 8 is a horizontal section of same on the dotted line 8-8 of Fig. 7; Fig. 9 is a detailed vertical section through the hollow drum shaft and is presented to illustrate the cam and link mechanism employed for controlling the feed of the bottles to the position on the rotary drum at which they receive the labels; Fig. 10 is an enlarged end view of the machine taken from the left hand end of Fig. 1; Fig. 11 is a detached top view, partly broken away, of the feed chute for delivering the bottles to be labeled, and Fig. 12 is a horizontal section through a portion of the machine on the dotted line 12-12 of Fig. 1.

In the drawings (Fig. 4), 20 designates the main driving shaft, 21 the shaft driven, with an intermittent motion therefrom, 22 the perforated belt, which has an intermittent motion, 23 the pasting mechanism to which the labels are, one after another, conveyed by said belt, 24 the partly perforated suction drum by which the labels are conveyed from the pasting mechanism to a point where they are rolled upon the bottles, one of which numbered 25, is shown in position to receive a label, and 26, 27 denote rubber covered rollers between which and the drum 24, the bottles 25 have a rolling action, under the influence of the drum 24, while the labels are being applied thereto. The bottles 25 are fed to the machine on a feed chute 28 and are discharged upon a delivery chute 29. The labels will preferably be automatically supplied to the perforated belt 22 by means of a label holder 30 hereinafter described.

The shaft 20 receives its motion from a drive wheel 31 which is free upon the projecting end of the shaft 21 and has connected with it, in the usual manner, a pinion wheel 32 (Fig. 10) which engages a gear wheel 33 secured upon the shaft 20. The shaft 20 therefore has a continuous motion while power is applied to the belt wheel 31. The shaft 21 has an intermittent motion imparted to it from the shaft 20 through a customary Geneva mechanism (Figs. 1, 2, 4, 10) comprising the slotted plate 34 secured upon the shaft 21 and a co-operating crank arm 35 secured upon the shaft 20 and carrying at its end a small trundle wheel 36 to engage, in succession, the slots of said plate 34, the said wheel 36 being shown in Fig. 4 as just about entering one of said slots. The casting carrying the arm 35 is formed with the usual segmental locking plate 37 to engage and move in the concave recesses 38 in the plate 34 for locking the latter and the shaft 21 stationary during the periods that the crank arm 35 is leaving one of the slots in the plate 34 and moving through space to reach and enter the next adjoining slot in said plate. The plate 34, crank arm 35 and segmental lock 37 are of fa-

miliar form and construction and therefore require no further description, their purpose being merely to impart intermittent rotation to the shaft 21 from the constantly rotating shaft 20.

- 5 The perforated belt 22 is mounted upon a drum 39 and shaft 40, and said drum 39 is loosely mounted upon the shaft 20 and has an intermittent motion imparted to it from the shaft 21 through the large gear wheel 42 secured on said shaft 21 and the pinion wheel 43 which is connected with said drum 39, said pinion wheel 43 having, as shown in Fig. 2, a sleeve 44 which enters the hub end of said drum and is secured to the latter by a screw 45. The drum 39 has therefore an intermittent motion and imparts the same to the perforated belt 22.
- 10 The drum 39 is formed with end annular flanges 46 (Fig. 2) to retain the belt 22 thereon. The shaft 40 is mounted between the sides of a frame 47, as shown in Figs. 2 and 4, and the bearings for the ends of said shaft project outwardly beyond the same, as at 48 (Fig. 2), to serve as guides for centering the belt 22 upon said shaft 40.
- The frame 47 forms within it an air chamber 49 whose lower wall 50 is slotted from end to end, as at 51 (Figs. 4 and 5) so that said lower wall 50 is in the form of a
- 25 grating, the bars or sections of said wall being connected by lugs 52 which do not extend downwardly to the lower edges of said bars, whereby below said lugs 52 are formed air spaces 53, this construction being provided so that the air suction acting through the chamber 49 and slots 51 may operate against the maximum surface of the belt 22. The air chamber 49 is in communication with a pipe 54 (Fig. 5) to which a suction blower or other air exhaust apparatus, not shown, may be connected for creating air suction upwardly through the
- 30 perforated belt 22 and lower wall 50 of the air chamber 49, for the purpose of causing a label to become attached to said belt, as hereinafter explained, and the said pipe 54 is provided with an automatic valve 55 whose stem 56 is encompassed by a coiled spring which normally operates to hold the valve 55 in closed position. The valve 55 is tripped to open when it is desired to create air suction within the chamber 49 for removing a label from the label holder 30 and enable the belt 22 to convey the same to the paste mechanism 23, and thereafter said valve 55 is allowed to close, the valve remaining closed until the next period arrives for the belt 22 to remove another label from the holder 30. The means for opening the valve 55 at the proper time comprise simply a double ended lever 57 (Fig. 2)
- 40 the inner end of which is forked to engage the valve stem 56 and the other end of which carries a small wheel in engagement with the periphery of the cam 58 secured on the shaft 20. With each rotation of the shaft 20 the cam 58 will open the valve 55 and hold the same open during a sufficient period for the belt 22 to take a label from the holder 30 and convey the same to the drum 24, the valve 55 closing after the label has become properly attached to said drum. The frame 47 is formed with vertical upwardly extending side sections
- 50 59 which are secured by bolts 60 to the machine frame (Figs. 1 and 2), and in the said side sections 59 are formed recesses 61 (Fig. 5) in which are guided bearing blocks carried upon the ends of the belt tightener roller 62, the latter being pressed downwardly against the up-

per reach of the belt 22 by means of springs 63. The purpose of the roller 62 is to keep the belt 22 taut.

The perforated belt 22 is designed to remove the labels one after another from the label holder 30 and deliver them to the pasting mechanism 23 and drum 24, and hence I will first describe said holder 30 and then the pasting mechanism and drum 24.

The holder 30 is not of unusual construction and comprises a vertically movable frame 64 (Figs. 1 and 4) having upwardly extending fingers or arms 65 whose upper ends have inwardly extending points 66 to engage the upper edges of a stack of labels 166 (Fig. 10) confined within the outline of said arms 65 and resting upon the movable bottom 67. The frame 64 is formed upon the upper end of a sleeve 68 which extends downwardly through an aperture 69 in the machine frame. The movable bottom 67 rests upon the frame 64 and is connected to the upper end of a rack bar 70 which extends downwardly through the sleeve 68 and is engaged by a pinion wheel 71 which is carried by the sleeve 68 and is equipped with a spring 72 (Fig. 1) coiled around its shaft so that said wheel 71 may normally act against the rack bar 70 to keep the bottom 67 pressed upwardly against the stack of labels placed upon it, whereby as the top labels are removed from the stack, the bottom 67 may follow up and always keep the labels at the upper ends of the arms 65.

The entire label holder 30 is given a movement from its normal position shown in Fig. 4, upwardly against the lower reach of the belt 22, for delivering a label to the latter, and then back to its normal position by means of crank-arms 73 integral with a sleeve 74 freely mounted upon the shaft 21 and having at one end a short crank arm 75 (Figs. 1 and 10) which is pivotally connected with the lower end of a bar 76 whose upper portion is bifurcated to guide upon the upper shaft 20 and carries a roller 77 in engagement with the lower edge of a cam 78 secured upon the shaft 20 and operating to, at the proper time, depress the bar 76 and cause the crank arms 73 to elevate the label holder 30 and maintain the same in its upper position until the belt 22 has had an opportunity to withdraw the top label therefrom, after which the cam 78 permits the holder 30 to descend and the bar 76 to ascend with its roller 77 against the edge of said cam. The sleeve 68 is provided with a locking dog 79 (Fig. 4) which is acted upon by a spring 80 to normally lock the rack bar 70 against movement and in opposition to the spring action of the pinion wheel 71, said dog 79 when it is acting against the rack bar 70 preventing the gear wheel 71 from moving the same. The dog 79 holds the rack bar 70 stationary and consequently locks the wheel 71 and the bottom 67, during the upward movement of the label holder 30 and also during the downward movement of said holder and until the latter reaches its lower position, when said dog will strike the adjustable screw stop 81 and be moved to release the bar 70 so that the pinion wheel 71 may then act to move the bottom 67 with the labels thereon upwardly to compensate for the one label which was removed from the upper end of the stack when the holder 30 was in its upper position against the belt 22. One object in locking the rack bar 70 when the holder 30 is away from its normal position, is to insure the removal from the stack

of only one label at a time, this label being drawn by air suction against the belt 22 and remaining there until the holder 30 descends. The points 66 at the upper ends of the arms 65 prevent the bottom 67 from pushing the labels upwardly from between said arms 65.

The paste-mechanism 23 comprises a tank 82 for the paste, a paste-roller 83, a hot-water chamber 84, a Bunsen-burner 85 for keeping the water in the chamber 84 hot, a cover and scraper 86 for preventing surplus paste from being carried upward by the roller, and a series of stripper fingers 87 which prevent the label from being carried around with the roller 83. The roller 83 is directly below the shaft 40 for the belt 22, and hence the belt 22 will carry the labels against said roller 83 so that their exposed lower surfaces may receive a layer of paste therefrom. The paste-tank is in the form of a cast frame and is secured in position upon a dove-tail 88 connected with the machine frame, as shown in Figs. 1, 4 and 5, the said paste-tank being introduced through the side of the machine and being secured in position by means of an ordinary spring latch bolt 89 whose upper end enters a socket formed in the lower portion of said tank.

The roller 83 is mounted upon a shaft 90 which is journaled in the end walls of the paste-tank and at one end projects beyond the same, as shown in Figs. 1 and 5, and is provided with a pinion wheel 91 which is in mesh with a gear wheel 92 and receives motion therefrom, whereby the paste-roller 83 is rotated. The gear wheel 92 is secured upon the sleeve 93 extending to the left, looking at Figs. 3 and 12, from the left hand end or head of the rotary drum 24, the said sleeve being connected with the drum 24 and rotating therewith and communicating its motion to the gear wheel 92. The drum 24 is hollow, as shown in Figs. 4 and 12, and about one longitudinal half of its cylindrical wall is perforated, the other half of said wall being solid. The ends of the drum 24 are closed by heads 94 and said heads are formed or provided with central sleeves or tubular extensions 93, 95, which receive within them the air pipe 96, upon which the drum 24 is mounted and which is closed at one end by a cap 97 and open at the other end to receive a suitable connection or pipe leading to a suction blower or other air exhaust apparatus of usual character, not shown. Within the drum 24 the pipe 96 is formed with a series of inlet apertures 98 through which to exhaust the air from within the drum. The pipe 96 does not rotate, and the drum 24 and its sleeves 93, 95 revolve around said pipe. Within the drum 24 and rigidly secured upon the pipe 26 I provide a rigid frame comprising a partition plate 99 extending entirely across the chamber within the drum 24 and the segmental wings 100 extending from the ends of said plate 99, the said frame comprised of said plate 99 and wings 100 always remaining stationary and being secured to the pipe 96 by means of hubs 101 and set-screws 102. The object of the plate 99 and wings 100 is to subdivide the chamber of the drum 24 into two sections so that the air suction acting through the pipe 96 may only operate in one of said chambers, whereby excessive leakage through that portion of the drum not holding the label may be obviated. It is unnecessary that there shall be any air suction acting on the drum 24 intermediate the bottle 25 and inner end of the belt 22 (looking to the left

from the bottle in Fig. 4), and hence the air suction is confined to that portion of the drum 24 which is to the right of the paste-roller 83, looking at (Fig. 4). The drum 24 has a constant rotation and the air suction is constant thereon, and hence as the perforated wall of the drum moves to the right, looking at Fig. 4, it will seize the edges of any label projecting beyond the belt 22 and paste roller and draw the label along over said roller in the direction of the arrow in Fig. 4 and finally hold every portion of said label until the same is delivered to and wrapped around the bottle 25. With each rotation of the drum 24 a label is delivered to and wrapped upon a bottle 25 and the latter is discharged from the machine, and with each of said rotations the perforated surfaces of the drum reach a position to remove another label from the paste-roller 83. The drum 24 receives its motion from a sprocket wheel 101 on the shaft 20, the sprocket chain 102 and sprocket wheel 103, the latter being on the sleeve 95 connected with one head of the drum 24 and being connected with the sprocket wheel 101 by said chain 102.

The bottles 25 are fed to the drum 24 upon an inclined feed chute 28, over which is provided an inclined plate 104 which is secured and rendered adjustable toward and from the chute 28 by means of bolts 105 entering inclined slots 106 formed in side frames 167. (Figs. 4 and 11). The plate 104 is also provided with adjustable downwardly extending flanges 107 held by screws 108 which pass through slots in said plate 104. The flanges 107 should be adjusted in accordance with the length of the bottles 25, the purpose being that the plate 104 should be in close relation to the top of the line of bottles and that the flanges 107 should be in conveniently close relation to the ends of the bottles, whereby to keep the bottles in proper line and guide them in regular manner to the drum 24. The chute 28 extends downwardly close to the surface of the drum 24, but terminates at one side of the vertical longitudinal center thereof, as shown in Fig. 4, and the lower edges of said chute 28 are slotted, as at 109, (Fig. 11), to receive the fingers 110 (Fig. 3) of a curved plate 111 which is secured upon a rod 112 whose ends carry blocks adjustably secured within slots 113 in the upper ends of oscillatory arms 114, whose hubs are swiveled upon the sleeves 93, 95 and formed with downwardly extending crank arms 115 (Figs. 1, 3 and 9), which are connected by links 116 with crank arms 117 secured upon the rock-shaft 118, whose axial oscillatory motion causes the said arms 114 to turn upon the sleeves 93, 95 and impart movement to the plate 111. The rock shaft 118 receives its movement from a cam 119 secured upon the drum sleeve 95, and a crank arm 120 which is rigid upon the shaft 118 and carries a small roller or trundle 121 in engagement with the edge of said cam 119. The arm 120 carrying the roller 121 is pressed toward the cam 119 by means of a coiled spring 122 which encompasses the shaft 118 and at one end engages the machine frame and at the other end presses against the arm 120, as shown in Fig. 3. During the rotation of the drum 24 and cam 119 the latter acting through the arm 120 actuates the rock shaft 118 and said shaft imparts its motion through the crank arms 117 and links 116 to the crank arms 115 which are integral with the arms 114. and hence

the latter are moved to locate and actuate the feed plate 111 from the cam 119. The plate 111 may be adjusted toward and from the drum 24 in accordance with the diameter of the bottles or cans under treatment, and likewise the outthrow of the plate 111 may be adjusted in accordance with the diameter of the said bottles, and this latter adjustment may be secured by means of a stop screw 123 (Figs. 1 and 9) and toe 124, the latter being integral with the lever arm 120 and said screw being projected through the plate 125 secured to the machine frame. The feed plate 111 is utilized for two purposes and in performing its functions assumes three different positions, the intermediate one being that shown in Fig. 4, where said plate 111 is shown in a state of rest supporting the row of bottles upon the chute 28 while one bottle is being rotated into the label between the rollers 26, 27 and drum 24. One function therefore of the plate 111 is to restrain the row of bottles on the chute 28 from passing to the drum 24 at an improper time, and another function of the plate 111 is, after a bottle has received its label and been discharged upon the chute 29 and the rollers 26, 27 are in correct position, to recede toward the right, looking at Fig. 4, so as to permit the bottles to roll downwardly on the chute 28 until the lower one of said bottles reaches the drum 24 and then to move toward the left, looking at Fig. 4, so that the end of said plate 111 may engage the lowermost bottle and push the same to its rolling position centrally upon the drum 24 and against the roller 26, after which the plate 111 will recede toward the right to the position in which it is shown in Fig. 4, thereby leaving the one bottle upon the drum 24 and operating as a stop to prevent the row of bottles on the chute 28 from running downwardly to the drum. The plate 111 therefore pushes the bottles, one after another, to their proper position to receive the labels and restrains the row of bottles from traveling down the chute 28 to the drum. The bottles 25 when at the rolling point on the drum 24 lie between the narrow lower edges of the arms 126, 127 (Fig. 3) which serve to retain the bottle against longitudinal displacement and insure the application of the wrapper or label in a proper manner thereto. The arms 126, 127 are adjustable upon a transverse rod 128 so that they may be moved toward and from each other in accordance with the length of the bottles to be treated. The arm 127 is also movable upon the rod 128 so that after said arms 126, 127 have been adjusted and the machine is in operation, the arm 127 may be automatically moved outwardly in a direction from the arm 126 while a bottle is being delivered to the drum 124 and then toward the arm 126 so as to center the bottle and reach a position for maintaining the bottle during the rolling action. I term the arms 126, 127 as indexing arms. The arm 127 receives its movement from a cam 129 (Fig. 3) on the drum sleeve 95 and connected with the sprocket wheel 103, said cam co-operating with a double-ended pivoted arm 130 carrying at its upper end a rod 131 which is pivotally connected with the said arm 127. The rod 131 is threaded at its outer end and is adjustable within a pivoted sleeve 132 carried by the lever arm 130, whereby the throw of the arm 127 and its predetermined position on the rod 128 may be regulated at will. The

lower end of the arm 130 is kept against the cam 129 by the pressure of a spring 133.

The bottle 25 while under treatment is engaged at three points about 120 degrees apart, by the drum 24 and rollers 26, 27. The rollers 26, 27 are controlled in their movement toward and from the drum 24 by means of pairs of cams 134, 135 secured upon the sleeves 93, 95 connected with the drum 24 and rotating therewith (Figs. 3, 6, 12). The cams 134, one being on the sleeve 93 and the other on the sleeve 95 correspond exactly with each other and they are utilized in co-operation with the roller 26, and the cams 135, there being one on the sleeve 93 and another on the sleeve 95, correspond exactly with each other and both are utilized in connection with the roller 27. Upon the sleeves 93, 95 are mounted the forked arms 136, 137 respectively, Figs. 3 and 6, which respectively carry trundle wheels or rollers 138, 139 respectively in engagement with the said cams 134, 135, so that said cams may move said arms 136, 137 and thereby impart movement to the rollers 26, 27 connected with the upper ends of said arms. The rollers 26, 27 are rubber covered rollers and are at their ends journaled in bearing blocks 140 (Figs. 6, 7, 8) which are adjustable by means of screws 141 in slides 142 to which the upper ends of the arms 136 and 137 are pivotally connected by means of screws 143. The slides 142 are guided in dove-tail grooves 144 provided in the machine frame, and said slides are normally pressed downwardly by means of coiled springs 145 (Fig. 7), which, acting through the arms 136, 137 keep the rollers or trundles 138, 139 against the edges of their respective cams 134, 135. The rollers 26, 27 are rendered adjustable by means of the screws 141 for the purpose of adapting them to the various diameters of the bottles or cans to be treated, and said rollers engage the bottles or cans with a yielding or spring pressure. The rollers 26, 27 are shown in the position they occupy during the rolling of a label upon the bottle 25 positioned between them and the drum 24, and said rollers are permitted to remain in this position by the cams 134, 135 so long as may be necessary for applying the label to the bottle, but immediately thereafter the cams 134 will elevate the roller 26 and allow the then labeled bottle to roll to and upon the delivery chute 29, this happening when the projecting portions 146 (Fig. 6) of the cams 134 are traveling below the trundles 138. Immediately after the said projecting portions 146 of the cams 134 leave the trundles 138 and permit the roller 26 to descend, like projecting portions 147 of the cams 135 will ride under the trundles 139 of the arms 137 and elevate the roller 27, and at the same time the feed plate 111 recedes from across the feed chute 28, whereupon the line of bottles 25 will roll down the chute 28 and the lower one of said bottles will rest upon the drum 24. Promptly thereafter the feed plate 111 will move toward the right, looking at Fig. 4, and drive the said lower bottle into its rolling position up against the roller 26, and thereupon said plate 111 will recede to the position in which it is shown in Fig. 4 and the projecting portions 147 of the cams 135 will pass from contact with the trundles 139 of the arms 137 and allow the latter to descend and carry the roller 27 to its lower position against the then positioned bottle, which is the position of the parts shown in Figs. 4 and 6. The roller

26 therefore, after a bottle has received its label, ascends to permit the bottle to escape upon the delivery chute 29, and thereupon the roller 26 descends and the roller 27 ascends so as to permit another bottle
 5 to be fed to the drum 24, the plate 111 receding for this purpose; and thereupon the plate 111 drives the said bottle to position against the roller 26, the roller 27 descends to engage the bottle, and the plate 111 withdraws to its intermediate position to restrain the series
 10 of bottles on the feed chute 28 from rolling downwardly to the drum 24.

The delivery chute 29 is of ordinary character and comprises an inclined frame covering over the top of the machine and leading downwardly from the rotary
 15 rolling drum 24, the lower portion of said frame being extended over the upper portion of the drum 39, as shown in Fig. 4, and having a hood portion 170 which covers over the crank 35 and segmental lock 37 on the shaft 20.

20 I have hereinbefore described the construction of the entire machine, and the operation of the machine will be largely understood from the detailed explanation hereinbefore given. The bottles to be labeled are fed downwardly upon the chute 28 and one bottle at a time
 25 is delivered to the rolling drum or cylinder 24 where it is held by the rollers 26, 27, the rotation of the drum serving to rotate the bottle. The labels are held by a label holder 30 which is movable vertically to press the stack of labels against the perforated label carrying
 30 belt 22 when it is desired that the latter shall remove a label from said stack. The belt 22 has an intermittent traveling motion imparted to it and is connected with air suction apparatus, and said belt 22 remains stationary when the label holder 30 is pressing the
 35 stack of labels against it. After the label holder 30 has descended and the top label has been taken by the belt 22, the latter will carry the label toward the drum 24 and against the paste-roller 83, which applies paste to the lower exposed surface of the label. After the
 40 belt 22 has moved the forward end of the label against the paste-roller, the latter, being in motion, will aid in moving the label toward the drum 24, and said drum will, by means of the air suction, engage the label and carry it along over the roller 83, until finally
 45 the entire label has become attached to said drum by means of the air suction created within the air chamber thereof. The label is prevented from being carried around the roller 83 by the presence of the stripper-fingers 87. The label taken by the drum 24 is carried
 50 by the latter to the bottle 25 held thereon, and when the label reaches the bottle, the latter being in rolling motion, said label will adhere to and become wrapped around said bottle, the rolling of the label or wrapper around the bottle being gradual and the gradually
 55 decreasing unrolled portion of the label being smoothly held by the drum 24 until it reaches and is applied upon said bottle. The rollers 26, 27 aid in pressing the label upon the bottle, and the air suction within the drum 24 places just enough tension on the label
 60 at the point where the bottle is taking it to insure a smooth application of the label to the bottle. It will be observed on reference to Fig. 4 that the bottle 25 is centrally above the edge of the partition 99, which divides the air chamber at the right from the dead
 65 chamber at the left, looking at Fig. 4, of the drum 24,

and by reason of this location of the bottle 25 the label as it reaches and starts to adhere to the bottle becomes, at the central line of the bottle, relieved from the air suction, whereby the bottle is enabled to roll itself
 70 into the label. The partition 99 thus cuts off the air suction from a section of the drum 24 so that the label or the like arriving at said section becomes gradually released from the action of the pneumatic pressure and is enabled to be taken by the bottle. The upper and
 75 lower edges of the partition 29 are formed with flanges 171 which snugly engage the inner surface of the drum 24 and aid in cutting off the air suction from the dead side of the drum. The labels are thus automatically removed from the holder 30 and given a layer of paste and automatically delivered to and wrapped upon the
 80 bottles, the labels one after another being held by the air suction until finally completely wrapped upon the bottles, whereby a great saving of time and also great uniformity in the result are attained.

I illustrate my invention as embodied in a machine
 85 for applying and pasting labels or wrappers to cylindrical bottles, but I contemplate the employment of said machine for applying labels, wrappers and the like to articles other than bottles and therefore I desire
 90 it to be understood that my invention is not limited merely to use in applying labels upon bottles. Nor is my invention limited to all of the details of form and construction shown and described, since these parts
 95 admit of change in form and arrangement without departing from the scope of my invention as claimed.

What I claim as my invention and desire to secure by Letters-Patent, is:—

1. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided
 100 with perforations in its surface, through which the air suction may act to hold the label or the like on said drum, means for feeding the labels or the like, one after another, to said drum, and means cutting off the air suction from a certain section of said drum whereby the label or the
 105 like on arriving at said section becomes gradually released, combined with means for feeding the bottles or other articles, one after another, to said section of said drum, and means for retaining the article on said section and permitting the same to rotate under the action of said drum for effecting the application of the label or the like,
 110 as the same is thus released, to such article; substantially as set forth.

2. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided
 115 with perforations in its surface, through which the air suction may act to hold the label or the like on said drum, means for feeding the labels or the like, one after another, to said drum, means for applying paste to the labels or
 120 the like during their travel, and means cutting off the air suction from a certain section of said drum whereby the label or the like on arriving at said section becomes gradually released, combined with means for feeding the
 125 bottles or other articles, one after another, to said section of said drum, and means for retaining the article on said section and permitting the same to rotate under the action of said drum for effecting the application of the label or the like, as the same is thus released, to such
 130 article; substantially as set forth.

3. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided
 135 with perforations in its surface through which the air suction may act to hold the label or the like on said drum, a perforated belt connected with suction means for feeding the labels or the like, one after another, to said drum,

- means for imparting to said belt an intermittent motion, a holder for a stack of the labels, means for moving the stack of labels against said belt so as to enable said belt to remove the top label, means for applying paste to the labels, and means cutting off the air suction from a certain section of said drum whereby the label or the like on arriving at said section becomes gradually released, combined with means for feeding the bottles or other articles, one after another, to said section of said drum, and means for effecting the application of the label or the like, as the same is thus released, to such article; substantially as set forth.
4. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided with perforations in its surface, through which the air suction may act to hold the label or the like on said drum, and means cutting off the air suction from a certain section of said drum whereby the label or the like on arriving at said section becomes gradually released, combined with means for feeding the bottles or other articles, one after another, to said section of said drum, and means for freely holding the article at said point so that the same may be rolled by the action of said drum into the label or the like as the latter is gradually released on arriving at said article; substantially as set forth.
5. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided with perforations in its surface through which the air suction may act to hold the label or the like on said drum, and means for cutting off the air suction from the label as it reaches a certain point in the rotation of said drum, so that said label may be gradually released, combined with means for feeding the bottles or other articles to said drum at said point, and means for freely holding the article at said point so that the same may be rolled by the action of said drum into the label or the like as the latter is gradually released on arriving at said article; substantially as set forth.
6. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided with perforations in its surface through which the air suction may act to hold the label or the like on said drum, means for feeding the labels individually to said drum, means for applying paste to the labels, and means for cutting off the air suction from the label as it reaches a certain point in the rotation of said drum, so that said label may be gradually released, combined with means for feeding the bottles or other articles to said drum at said point, and means for freely holding the article at said point so that the same may be rolled by the action of said drum into the label or the like as the latter is gradually released on arriving at said article; substantially as set forth.
7. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided with perforations in its surface through which the air suction may act to hold the label or the like on said drum, perforated suction means for feeding the labels or the like to said drum, means for cutting off the air from said suction means as the labels or the like are fed thereby to said drum, and means for cutting off the air suction from the label as it reaches a certain point in the rotation of said drum so that said label may be gradually released, combined with means for feeding the bottles or other articles to said drum at said point, and means for freely holding the article at said point so that the same may be rolled by the action of said drum into the label or the like as the latter is gradually released on arriving at said article; substantially as set forth.
8. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided with perforations in its surface through which the air suction may act to hold the label or the like on said drum, a perforated suction belt for feeding the labels to said drum, means for applying paste to the labels, and means for cutting off the air suction from the label as it reaches a certain point in the rotation of said drum so that said label may be gradually released, combined with means for feeding the bottles or other articles to said drum at said point, and means for holding the article at said point so that the same may be rolled by said drum into the label or the like as the latter is gradually released on arriving at said article; substantially as set forth.
9. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided with perforations in its surface through which the air suction may act to hold the label or the like on said drum, and means for cutting off the air suction from the label as it reaches a certain point in the rotation of said drum so that said label may be gradually released, combined with means for feeding the bottles or other articles to said drum at said point, and oppositely disposed rollers alternately movable toward and from said drum for holding the article at said point so that the same may be rolled by said drum into the label or the like as the latter is gradually released on arriving at said article; substantially as set forth.
10. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided with perforations in its surface through which the air suction may act to hold the label or the like on said drum, and means for cutting off the air suction from the label as it reaches a certain point in the rotation of said drum so that said label may be gradually released, combined with means for feeding the bottles or other articles to said drum at said point, and a pair of rollers independently and alternately movable toward and from said drum for holding the article at said point so that the same may be rolled by said drum into the label or the like as the latter is gradually released on arriving at said article; substantially as set forth.
11. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided with perforations in its surface through which the air suction may act to hold the label or the like on said drum, and means for cutting off the air suction from the label as it reaches a certain point in the rotation of said drum so that said label may be gradually released, combined with means for feeding the bottles or other articles to said drum at said point, and a pair of spring-pressed soft-covered rollers independently and alternately movable toward and from said drum for holding the article at said point so that the same may be rolled by said drum into the label or the like as the latter is gradually released on arriving at said article; substantially as set forth.
12. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided with perforations in its surface through which the air suction may act to hold the label or the like on said drum, and means for cutting off the air suction from the label as it reaches a certain point in the rotation of said drum so that said label may be gradually released, combined with a feed chute on which the bottles or other articles are fed to the machine, a plate for arresting the line of articles on said chute while one article is being treated on said drum and then receding to allow the lower article of said line to reach the drum and then moving against said article to push it to said point on said drum where the label is released, means for imparting movement to said plate, and a pair of rollers independently movable toward and from said drum for holding the article at said point so that the same may be rolled by said drum into the label or the like as the latter is gradually released on arriving at said article; substantially as set forth.
13. In a machine for applying labels or the like to bottles or other articles, a rotary drum having means for connecting the same with air suction apparatus and provided with perforations in its surface through which the air suction may act to hold the label or the like on said

drum, and means for cutting off the air suction from the label as it reaches a certain point in the rotation of said drum so that the label may be gradually released, combined with means for feeding the bottles or other articles to said drum at said point, indexing arms for engaging the ends of the article and locating the same on said drum with respect to the label, means for moving one of said arms toward the other and against said article, and rollers for holding the article at said point so that the same may be rolled by said drum into the label or the like as the latter is gradually released on arriving at said article; substantially as set forth.

14. In a machine for applying labels or the like to bottles, cans and other articles, a perforated suction body for receiving and holding the label or the like and delivering the same to such article, and means for holding the article at a definite point and against said body, combined with means for cutting off the air suction from the label as it reaches said point so that the label may be gradually released, and means for moving said body relatively to said article so that the latter may be by said body rolled into the label as the same is gradually released; substantially as set forth.

15. In a machine for applying labels or the like to bottles, cans and other articles, a perforated suction body for receiving and holding the label or the like and delivering the same to such article, a pair of rollers for holding the article at a definite point and against said body and means for independently and alternately moving said rollers toward and from said article, combined with means for cutting off the air suction from the label as it reaches said point so that the label may be gradually released,

and means for moving said body relatively to said article so that the latter may be by said body rolled into the label as the same is gradually released; substantially as set forth. 35

16. In a machine for applying labels or the like to bottles, cans and other articles, a perforated suction body for receiving and holding the label or the like and delivering the same to such article, and means for holding the article at a definite point and against said body, combined with means for applying paste to the label during its travel, and means for moving said body relatively to said article so that the latter may be gradually rolled into the label as the same reaches said article; substantially as set forth. 40 45

17. In a machine for applying labels or the like to bottles, cans and other articles, a perforated suction body for receiving and holding the label or the like and delivering the same to such article, a pair of rollers for holding the article at a definite point and against said body and means for moving said rollers alternately toward and from said article, combined with means for applying paste to the label during its travel, and means for moving said body relatively to said article so that the latter may be gradually rolled into the label as the same reaches said article; substantially as set forth. 50 55

Signed at New York city, in the county of New York and State of New York this 12th day of July A. D. 1905.

BENJAMIN W. TUCKER.

Witnesses:

CHAS. C. GILL,
ARTHUR MARION.