

A. N. KETTERER.
BOTTLE LABELING MACHINE.
APPLICATION FILED FEB. 15, 1909.

954,635.

Patented Apr. 12, 1910.

2 SHEETS—SHEET 1.

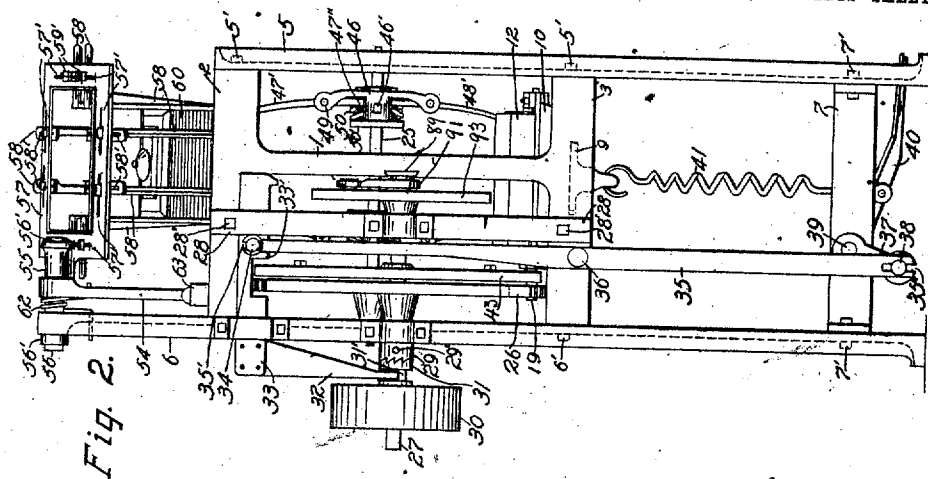


Fig. 2.

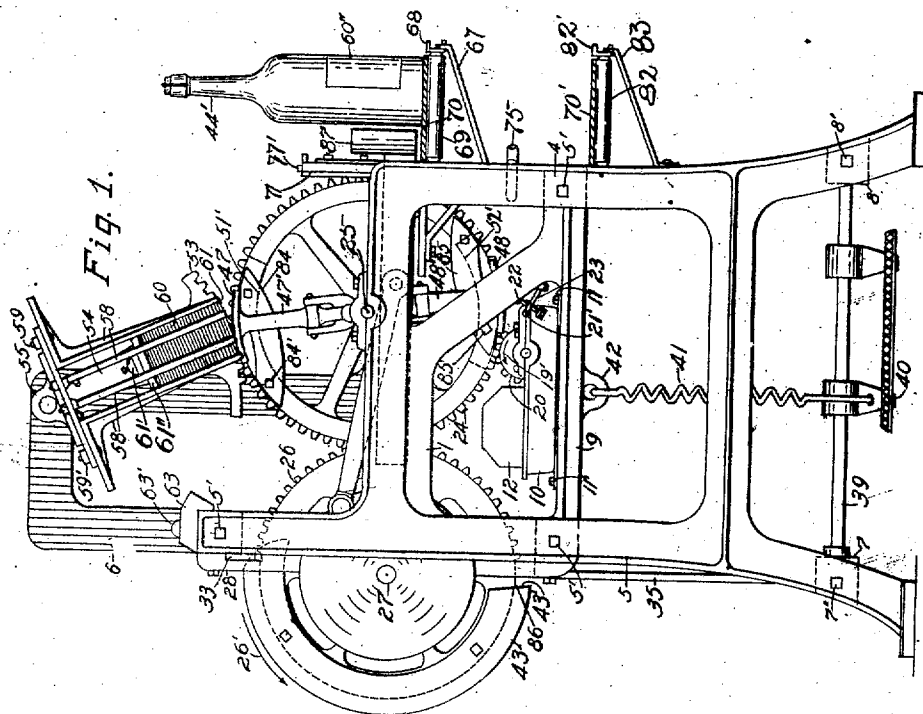


Fig. 1.

WITNESSES:

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Luke C. Hinton.

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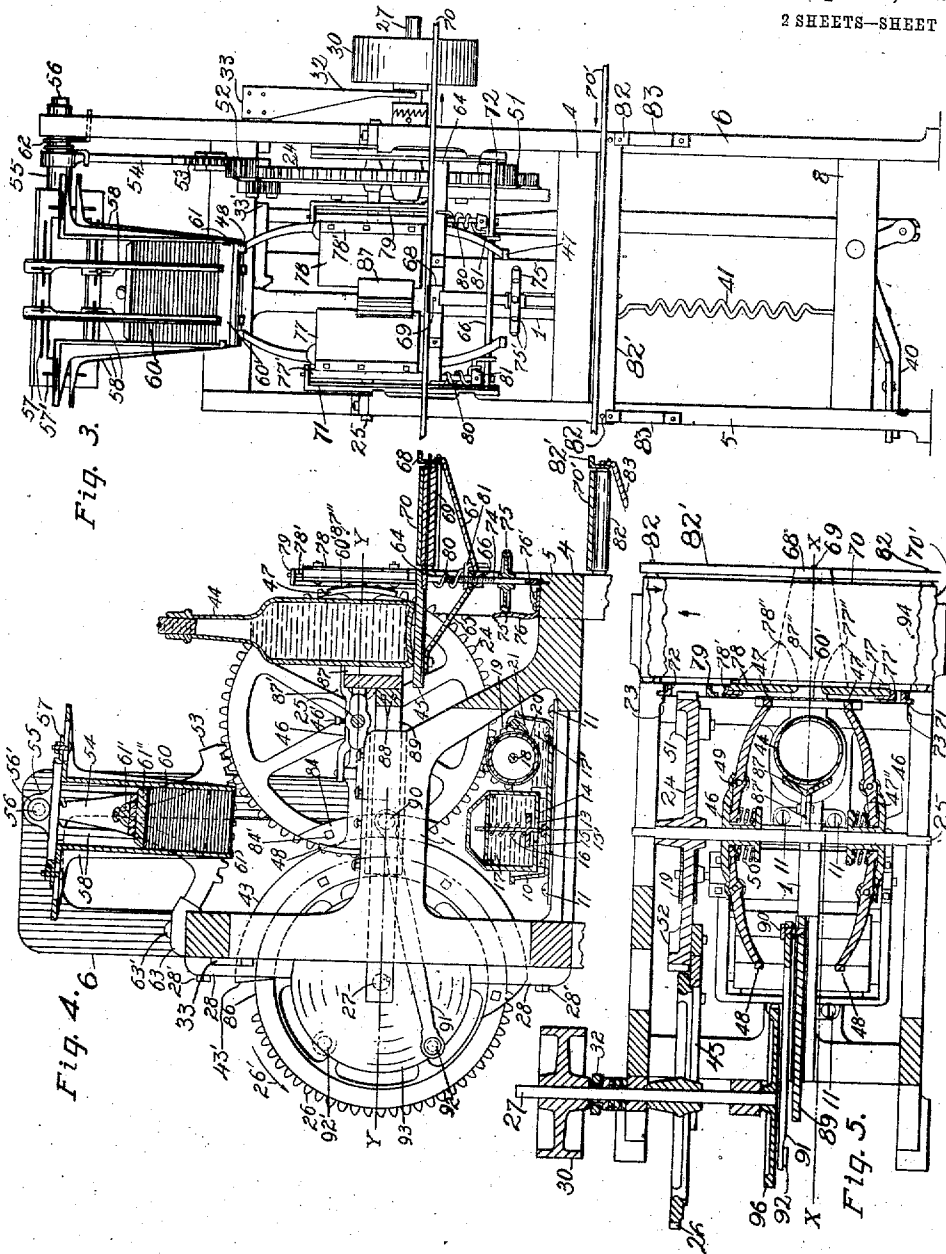
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2 SHEETS—SHEET 2.



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Louise Cox
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ALVIN N. KETTERER, OF ST. JOSEPH, MISSOURI.

BOTTLE-LABELING MACHINE.

954,635.

Specification of Letters Patent. Patented Apr. 12, 1910.

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To all whom it may concern:

Be it known that I, ALVIN N. KETTERER, a citizen of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Bottle-Labeling Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to improvements in bottle labeling machines, and the objects of my improvements are, first; to provide a bottle labeling machine, which will secure labels on bottles of various sizes and portions, without the use of any extra parts or attachments, and without changing or in any way, readjusting any of the parts of the machine; and which in all its operations, keeps the bottle, being labeled thereby, in an upright, vertical position, and subjects said bottle to such treatment as will not cause said bottle to be broken thereby; second; to so arrange the parts of a bottle labeling machine, that unlabeled bottles may be carried to the most convenient point, for the operator of said machine, and that labeled bottles are mechanically discharged therefrom, and may be mechanically carried to any desired point, distant from the machine; thus reducing the manual labor of said operator to the minimum; third; to so construct a bottle labeling machine, that ready means is provided, whereby the position of the label, as to height from the bottom of the bottle, is easily and quickly adjusted; fourth; to provide a bottle labeling machine, in which the label carrier is provided with label holders, which are adjustable to various forms and sizes of labels, and in which said labels are agitated and thereby rendered readily separable; fifth; to so construct and arrange the parts of a bottle labeling machine, that the glue or other adhesive material, used, will not in any way interfere with the continuous operation of the machine, and to provide ready means, whereby the quantity used, of said glue or other adhesive, is regulated, and thereafter uniformly maintained; sixth; to provide simple and inexpensive means, whereby the machine is readily started and automatically stopped, in proper position for the reception of an unlabeled bottle; seventh; to provide a bottle labeling machine, which is simple in construction, durable, not at all liable to get out of order, and in which, all the parts are

comparatively cheap in cost of manufacture. I attain these objects, by the mechanism illustrated in the accompanying drawing, in which:—

Figure 1., is a side elevation of the machine, as it appears when in use; showing a bottle in position, after being labeled by the machine. Fig. 2 is a rear view, certain parts being omitted, to avoid confusion. Fig. 3., is a front elevation, certain parts being omitted, to avoid confusion. Fig. 4. is a vertical section, cut on the line X X, seen in Fig. 5, showing a bottle in position to be labeled. Fig. 5. is a horizontal section, cut on the line Y Y, seen in Fig. 4.

My invention, in its preferred form, comprises two pairs of rotatable label pickers, adapted to receive glue from a gluing mechanism and to pick labels, from a label carrier, one at a time, and to carry said labels to proper position, to be secured on bottles, pushing means, for pushing said bottles, and securing means, for securing said labels, on said bottles, and supporting means, for supporting a bottle carrier, all of which is fully described, except the carrier, which forms no part of this invention, and is therefore neither fully shown nor described.

Referring to Figs. 1 and 2; the boss piece 1 is provided with tie bars 2, 3 and 4, formed therewith, to the ends of which frame sides 5 and 6 are secured by bolts 5' and 6' thus forming the frame of the machine, strengthened by tie bars 7 and 8, secured to said frame sides, by bolts 7' and 8'. Boss piece 1, is also provided with fountain support 9, formed integral therewith, and on which glue basin 10, is secured by screws 11. In basin 10, is the glue tank 12, provided with opening 13 through the bottom 14 (see Fig. 5,) and with valve 15, adapted to be held open, by its stem 15', when in said basin, and to be closed by spring 16, when said tank is removed from basin 10; thus providing fountain feeding means, by which glue 17 in said tank, is supplied to basin 10, to the depth in said basin, indicated at 17'.

Rotatably mounted on basin 10, is the glue roller shaft 18, rotated by pinion 19, and carrying glue roller 20, secured thereon, which is adapted to carry glue from basin 10, on the surface thereof. The thickness of the film of glue on the surface of said roller, is regulated to any desired thickness, by the free edge of scraper 21, adjusted to any desired distance from roller 20, by thumb screw

22, (see Fig. 1,) screwed through weighted arm 23, the inner end of which is secured to scraper shaft 21', rotatably mounted on basin 10 and secured to the upper edge of said scraper.

Pinion 19 is rotated in the direction indicated by arrow 19', by engagement with picker gear 24, secured on shaft 25, rotatably mounted on frame sides 5 and 6, and is driven intermittently, by intermittent gear 26, secured on drive shaft 27, rotatably mounted on frame side 6 and drive shaft support 28, secured to tie bars 2 and 3, by bolts 28', seen best in Fig. 2.

Drive shaft 27 is provided with ratcheted collar 29, secured thereon by pin 29', and has drive pulley 30, loosely mounted on the outer end thereof. Said pulley is provided with ratcheted hub 31, the ratchets of which are adapted to engage the ratchets of said ratcheted collar. Hub 31 has channel 31', formed therein, in which operates the ends of shifter 32, thereby forming disengageable engaging means, for disengageably engaging the ratchets of said hub with the ratchets of said collar. Shifter 32 has its upper end secured to shifter bar 33, slidably held by frame side 6 and support 28. Said shifter bar is slidably moved, by pivot 34, driven by slotted upper end 35', of connecting rod 35, pivotally secured by pivot 36 to tie bar 3.

The lower slotted end 35'', of connecting rod 35, is pivotally secured to treadle crank 37, by pivot 38. Said crank is secured on the rear end of treadle shaft 39, rotatably mounted in tie bars 7 and 8. Treadle 40, is secured on shaft 39 and provided with spring 41, the lower end of which is secured to said treadle and the upper end secured to eye piece 42, formed with glue fountain support 9.

Intermittent gear 26, carries stop segment 43, (seen best in Figs. 1 and 4,) provided with stop surface 43', adapted to contact shoulder 33', (see Figs. 2 and 3,) formed on shifter bar 33, for stopping the machine in proper position, for an unlabeled bottle 44, to be manually placed on bottle table 45, as seen in Fig. 4.

Picker hubs 46 are adjustably secured on shaft 25, by set screws 46', and provide adjusting means whereby pickers 47, and likewise pickers 48, are secured at any desired point on said shaft, at any desired distance from each other. Since said hubs and pickers are exactly alike, respectively, in their construction and operation, a detailed description of but one of said hubs and one of said pickers is sufficient. Picker 47, (see Figs. 1 and 5,) is formed on the outer end of picker arm 47', which is rotatably secured in hub 46, by pivot 49. Spring 50 is compressed between spring holder 50', and the inner end of picker arm 47'. Said spring is held in place at one of its ends, by holder

50', and at its other end by boss 47'', formed on said inner end of picker arm 47', which is thereby elastically pressed outward against the inner surface of hub 46 thereby limiting the outward movement of said inner end, and thus limiting the inward movement of picker 47, thereby providing elastic replacing means, whereby said picker is replaced in its normal position, after said picker has moved outward, as hereinafter described.

Formed with picker gear 24, are the two gear segments 51 and 52, (see Figs. 3 and 5,) situated respectively in register with pickers 47 and 48. Pickers 47 are rotated by shaft 25, from the position seen in Fig. 4, to the position seen in Fig. 1, with their gear segment 52 (see Fig. 3,) rotated into engagement with gear segment 53, formed on the arc shaped extremity of label carrier arm 54, the upper end of which is secured on label carrier 55, rotatably supported on stud 56, provided with head 56' which holds said label carrier thereon. Stud 56 is secured in the upper portion of frame side 6, by nut 56'. The heretofore described parts provide synchronous moving means, whereby said label carrier and its attached parts, are synchronously moved with the movement of pickers 47. Secured to the inner end of said label carrier is the holder plate 57, having slots 57', formed therethrough, to which is adjustably secured the L shaped label holders 58, which have slots 58', formed in the upper portions thereof, through which bolts 59 are passed, through slots 57', and secured therein, by nuts 59'; thereby providing adjustable securing means, whereby said label holders, are laterally and longitudinally adjusted and secured to said holder plate, for the adjustment of said holders to labels 60, which are removably held between said holders, by the inwardly projecting fingers 61, formed on the lower ends of said holders. Said labels are held down by weight 61', removably secured on block 61''.

Label carrier 55 is provided with torsion spring 62, placed around the outer portion thereof, one end of which presses against frame side 6, and the other end thereof presses against arm 54 for moving said label carrier and its attached parts, from the position seen in Fig. 1, to the position seen in Fig. 4, with the rear end of segments 53 stopped against stop 63, secured on tie bar 2, by cap screw 63'.

Referring to Fig. 4, bottle table 45 is secured to table frame 64, and has its inner end supported by brace 65, secured to bottom piece 66 of said frame. Said brace extends outward and upward, and forms brace 67, which supports one end of roller bearing piece 68, the inner end of which is secured to table frame 64. Carrier roller 69 has its outer end rotatably mounted in said bearing piece and its inner end rotatably supported

in an aperture in table frame 64. Said roller is adapted to support the portion shown of an endless belt carrier 70.

Table frame 64 and bottom piece 66, are secured together, by side pieces 71 and 72, the outer edges of which, are slidably held and guided between projections 73, formed with frame sides 5 and 6. The thus held and guided table frame is supported by adjusting screw 74, which is screwed through a screw threaded aperture in bottom piece 66, and has its lower end rotatably supported in tie bar 4. Said adjusting screw is provided with hand wheel 75, provided with stop notches, 75', formed in the periphery thereof, which engage the upper end portion of spring 76, the lower end of which is secured to tie bar 4, by screws 76', thus forming bottle table adjusting means.

Wipers 77 and 78, preferably formed of thick sheet rubber, are secured, respectively, to wiper posts 77' and 78', the lower ends of which, are rotatably mounted in apertures in bottom piece 66. Said posts pass loosely through apertures in table frame 64, and the upper end of post 77' is rotatably secured in an aperture in the upper bent end of side piece 71; while the upper end of post 78' is rotatable in an aperture in the upper bent end of post bracket 79, the lower end of which is secured to table frame 64.

Encircling the lower portions of posts 77' and 78', are the torsion springs 80, the upper ends of which, are secured in apertures in table frame 64, (seen best in Fig. 3,) while their lower ends press against post cranks 81, (secured on said posts) against bottom piece 66, thereby limiting the backward movement of said cranks, and thus providing returning means whereby wipers 77 and 78 are returned to their normal position, after said wipers have been rotated outward, as hereinafter described. The return portion of endless carrier 70, shown at 70', is supported on rollers 82, the outer ends of which are supported in apertures, in bearing piece 82', supported by brackets 83, the inner ends of which are secured to frame sides 5 and 6, respectively. The inner ends of rollers 82 are rotatable in apertures in said frame sides, respectively.

Plunger 87 is secured by bolts 88, to plunger rod 89, slidably mounted in boss piece 1, and pivotally connected by pivot 90 to connecting rod 91, driven by crank 92, carried by crank disk 93, secured on shaft 27, which continually rotates, while the machine is in operation, and continually reciprocates plunger 87, between points 87' and 87'', seen in Figs. 4 and 5.

Referring to Fig. 1, picker gear 24 has the two stop pieces 84 and 85 secured thereon, by cap screws 84' and 85', respectively. The outer surfaces of said stop pieces are concaved to conform with the periphery of

stop segment 43, for successive engagement therewith (as seen in Fig. 4), and thereby intermittently stop and hold gear 24 and the thereto attached pickers, in the position seen in Fig. 4.

The smooth periphery 86 of intermittent gear 26, rotates past gear 24, while said gear is thus being held and said segment and stop pieces are so formed and timed, as shown, that their engagement is released upon the reengagement of gear 26 with gear 24, as seen in Fig. 1.

In the operation of my invention, label holders 58, are adjusted to receive any desired form of label, 60, which are placed therein, with block 61' and weight 61', thereon. Pickers, 47, are adjusted and secured in proper position, to pass between fingers 61, as seen in Fig. 3. Glue is placed in tank 12, by manually opening valve 15, after which said tank is placed as seen in Fig. 4, and the glue regulating means is adjusted. Power is applied to pulley 30, and the operator, (not shown,) places one foot on treadle 40, and depresses said treadle to the position shown, thus starting the machine.

Pickers 47 rotate from the position occupied by pickers 48, (seen in Fig. 1,) which carries their peripheries rotatively in contact with the glued surface of roller 20, thereby depositing glue on said pickers. Said pickers rotate to the point occupied by pickers 48, in Fig. 4, and are there stopped and held for a certain period of time, by the heretofore described intermittent mechanism, after which said pickers, are rotated to the position seen in Fig. 1, beneath labels 60, the movement of which is synchronized with the movement of said pickers, by the heretofore described synchronous moving means, thereby causing the bottom label 60', of said labels, to adhere to said pickers and be carried thereby, from holders 58, to the position seen in Fig. 4, where pickers 47 are again stopped and held, by their intermittent mechanism, with label 60', held, adhesively, thereon, with plunger 87 in the position seen in Fig. 4, and crank 92 in the position indicated by dotted lines 92', and drawing said plunger toward point 87'. In the meantime carrier 70, carries a bottle 44, from some distant point, not shown, to the point 94 seen in Fig. 5, from whence, said operator, manually moves said bottle on to table 45, in the position shown in Figs. 4 and 5. While said operator is thus placing said bottle, plunger 87 is moved from the position shown in Figs. 4 and 5 to point 87' and returned to bottle 44, which said plunger pushes against label 60', and thereby moves said label from pickers 47, and against wipers 77 and 78, with sufficient pressure to overcome their springs 80, which thereby causes said wipers to rotate with

their respective posts, 77' and 78', from their normal position, shown, to the position indicated by dotted lines 77'' and 78'', seen in Fig. 5. The pressure of said wipers causes label 60' to adhere to bottle 44, which is still farther pushed to the position seen at 44', with said label secured on said bottle, in the position seen at 60'' in Fig. 1; from whence said bottle is carried by carrier 70 to any desired distant point, not shown. After said bottle has thus been pushed past the free edges of wipers 77 and 78, said wipers are returned to their normal position, by the heretofore described returning means. While plunger 87 is thus pushing said bottle and label between said wipers, pickers 47 are rotated from the position seen in Fig. 4, to the position occupied by pickers 48, in Fig. 1, thus completing one entire operation. It will be seen and understood that pickers 48, are at the same time being rotated and operated alternately with pickers 47, and that the moving parts are so timed, that plunger 87, has sufficiently recovered its stroke, after each operation thereof, as not to interfere with the succeeding operation, which is performed in like manner by pickers 48, and said plunger.

In cases where the diameter of bottle 44 is greater than the space between pickers 47, said bottle in passing between them, forces said pickers outward, which thereby causes arms 47' to rotate outward, on their pivots 49, and after the described passage of said bottle said pickers are returned to their normal position, by their heretofore described replacing means.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a labeling machine, a rotatably mounted picker shaft; a pair of label pickers, adjustably mounted on said shaft; a rotatably supported glue roller shaft, having a glue roller secured thereon, and provided with a pinion on the end thereof; glue supplying means for supplying glue to the surface of said roller; glue regulating means, for regulating the amount of glue on said roller; a gear on said picker shaft adapted to engage said pinion, for rotatively contacting the surfaces of said pickers with the surface of said glue roller, and driving means, whereby said picker shaft is rotated.

2. In a bottle labeling machine, in combination, a pair of rotatably supported label pickers; a rotatably supported glue roller, provided with rotating means, whereby the surfaces of said pickers and the surface of said roller are rotatively contacted; a glue basin, in which said glue roller is mounted; a glue tank, having an opening in the bottom thereof, and removably supported in said basin; a valve in said tank, adapted to close said opening; a spring in said tank, adapt-

ed to move said valve to close said opening; supporting means whereby said basin is supported; and driving means, whereby said rotating means is rotated.

3. In a bottle labeling machine, a frame for said machine; a label carrier, oscillatably mounted on a stud, supported by said frame; a holder plate, secured to said carrier, said holder plate having a large opening formed therethrough, adapted to have a pile of labels passed through said opening, said holder plate also having slots formed therethrough, parallel to the sides of said opening; a plurality of L shaped label holders, having slots formed through their upper portions, and fingers formed on their lower extremities, adapted to support said pile of labels thereon, between said holders; a weighted block, adapted to be passed through said opening in said holder plate and rest upon said pile of labels; securing means, through the slots of said holders and said holder plate; an arm, having its upper end secured to said carrier and its lower end provided with a gear segment, formed thereon; moving means, adapted to engage said segment, for moving said label carrier; a spring adapted to recover the movement of said carrier, and a stop, secured to said frame, and adapted to contact said segment, for stopping said carrier at the end of its recover movement.

4. In a bottle labeling machine a suitably supported rotatable picker shaft; a pair of label pickers, adjustably secured on said shaft; a glue roller adapted to apply glue to the surfaces of said pickers, and provided with glue supplying means therefor; an oscillatably supported label carrier, adapted to carry labels; synchronous moving means, whereby the glued surface of said pickers and the backs of said labels, one at a time, in succession, are rotatively contacted; intermittent moving and stopping means, for said pickers; a bottle table, adapted to have a bottle placed thereon, in a vertical position; a pair of wipers; a plunger, adapted to push said bottle against said label, and to push said glued label and bottle, against and between said wipers; together with driving means, for driving said plunger and said intermittent moving and stopping means.

5. In a bottle labeling machine, a suitably guided, vertically adjustable table frame, having a table secured thereto, said table being adapted to support a bottle thereon, in a vertical position; a pair of vertical wiper posts, rotatably supported by said table frame; a pair of wipers, having their outer edges secured, one to each of said posts; a plunger provided with reciprocative driving means, whereby said plunger is reciprocatively driven; and spring actuated returning means on said wiper posts.

6. In a bottle labeling machine, a suitably

supported rotatable drive shaft, provided with driving means on one end thereof; a rotatably supported picker shaft; a plurality of label pickers, arranged in pairs and adjus-
 5 tably secured on said picker shaft; a picker gear, on said picker shaft; an intermittent gear, on said drive shaft, adapted to intermittently engage and thereby intermit-
 10 tently drive said picker gear; a disk segment, on said intermittent gear; a plurality of stop pieces, on said picker gear, one piece in register with each pair of said pickers, and adapted to be stopped and held by said
 15 disk segment, intermittently, as specified; a bottle plunger, adapted to push a bottle; rod and crank connections, whereby said plunger is connected with said drive shaft, and a pair of suitably supported elastic
 20 wipers, adapted to have said bottle, pushed by said plunger against and between said wipers.

7. In a bottle labeling machine, a drive shaft, provided with driving means, on the outer end thereof, and an intermittent gear,
 25 secured thereon; a disk segment, secured on said intermittent gear, and having a stop surface, formed on one end thereof; disengageable engaging means, whereby said driving means is disengageably engaged with
 30 said drive shaft; a shifter bar, adapted to operate said disengageable engaging means, said bar being provided with a shoulder thereon, adapted to be contacted by the stop surface of said disk segment and moving
 35 means, for slidably moving said bar.

8. In a bottle labeling machine, in combination, a rotatably supported drive shaft, provided with a drive pulley, loosely mounted on the outer end thereof, said drive pulley
 40 being provided with a ratcheted hub, formed therewith, said hub having a channel formed in the annular surface thereof; a ratcheted collar, secured on said drive shaft, the ratchets of which are adapted to be engaged
 45 by the ratchets of said hub; a shifter, adapt-

ed to operate in said channel; a suitably supported, slidable shifter bar, secured to said shifter, and provided with a stop shoulder, thereon; an intermittent gear, secured on said drive shaft, and provided with a
 50 disk segment, secured thereon, said segment having a stop surface on one end thereof, adapted to contact said stop shoulder, on said shifter bar, for stopping said segment, and thereby stopping said machine; a
 55 treadle, provided with a treadle shaft, having a crank on one end thereof and a pivotally supported rod connecting said crank with said shifter bar, and a spring, adapted to move said treadle, and thereby disengage
 60 the ratchets of said hub from the ratchets of said collar, and to move said shifter bar, and thereby move its stop projection in proper position to be contacted by the stop surface of said disk segment.
 65

9. In a bottle labeling machine, in combination, a boss piece, provided with tie bars formed therewith and adapted to have a
 70 plunger rod slidably mounted therein, and having a fountain support, formed therewith; two frame sides, secured to said tie bars, and provided with guide projections, adapted to guide a bottle table frame; a bot-
 75 tle table frame slidably guided between said projections; said bottle table frame being adapted to have a bottle table secured there-
 80 to; supporting means, secured to said bottle table frame, said supporting means being adapted to support a certain portion of an endless carrier; and other supporting means, secured to said frame sides, adapted to support a certain portion of the return part of said endless carrier.

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

ALVIN N. KETTERER.

Witnesses:

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 G. MCGINNIS.