M. E. NOYES.

BOTTLE LABELING MACHINE.

APPLICATION FILED MAY 18, 1905.

951,837. Patented Mar. 15, 1910.

5 SHEETS—SHEET 1.

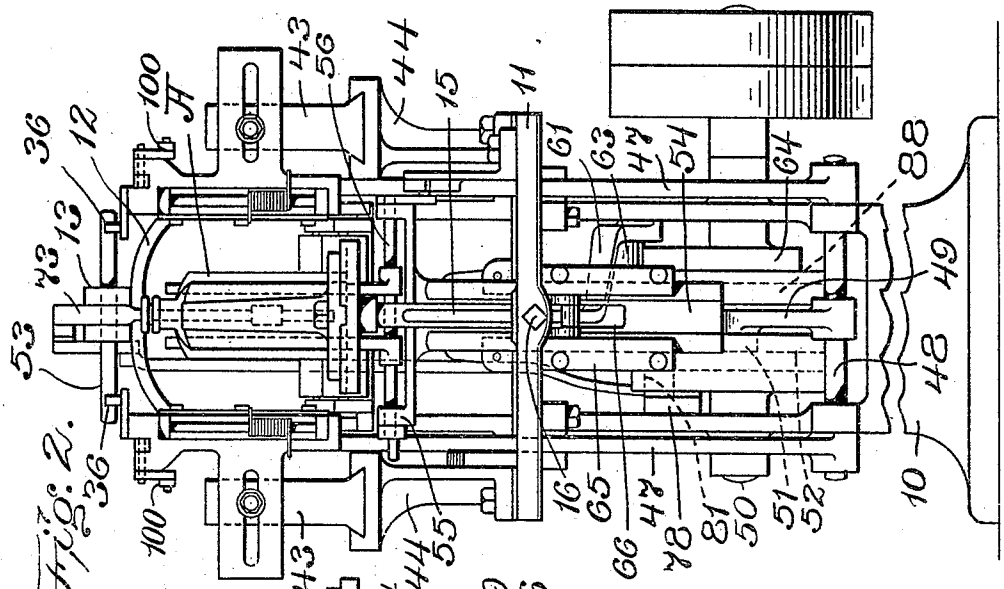

Fig. 2.

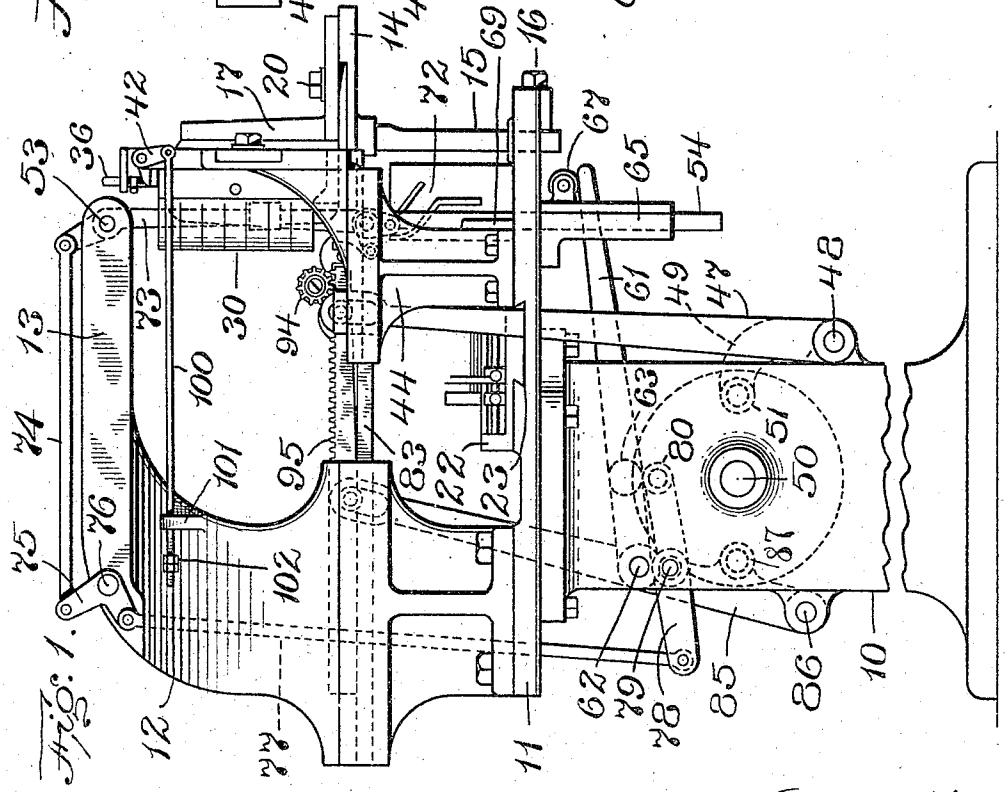

Fig. 1.

Witnesses:
C. C. Stecher
W. P. Abell.

Inventor,
M. E. Noyes,
by
Wright Brown Quinby & May
his Attys.

ANDREW B GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON D C.

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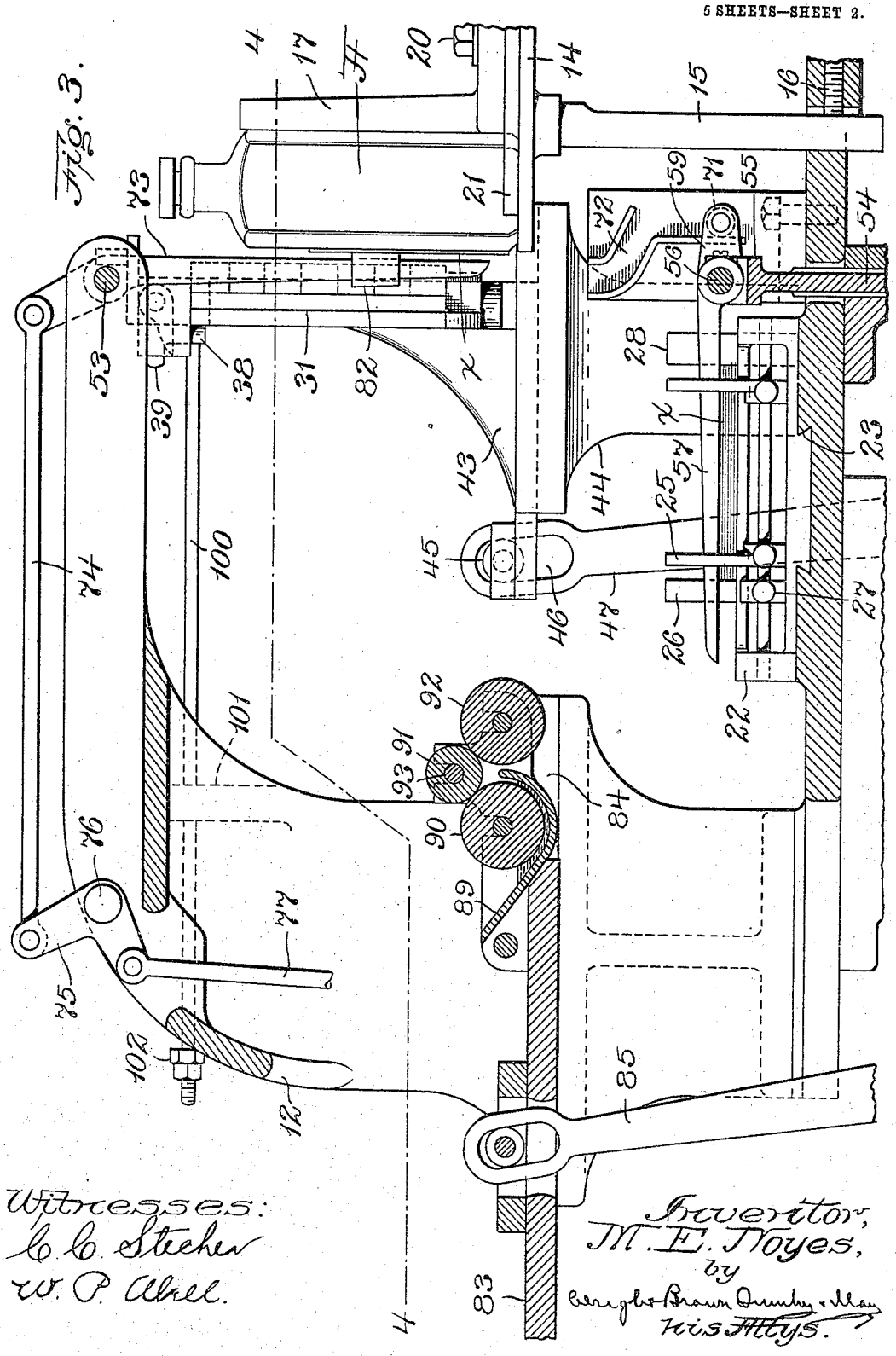
Fig. 3.



Witnesses:
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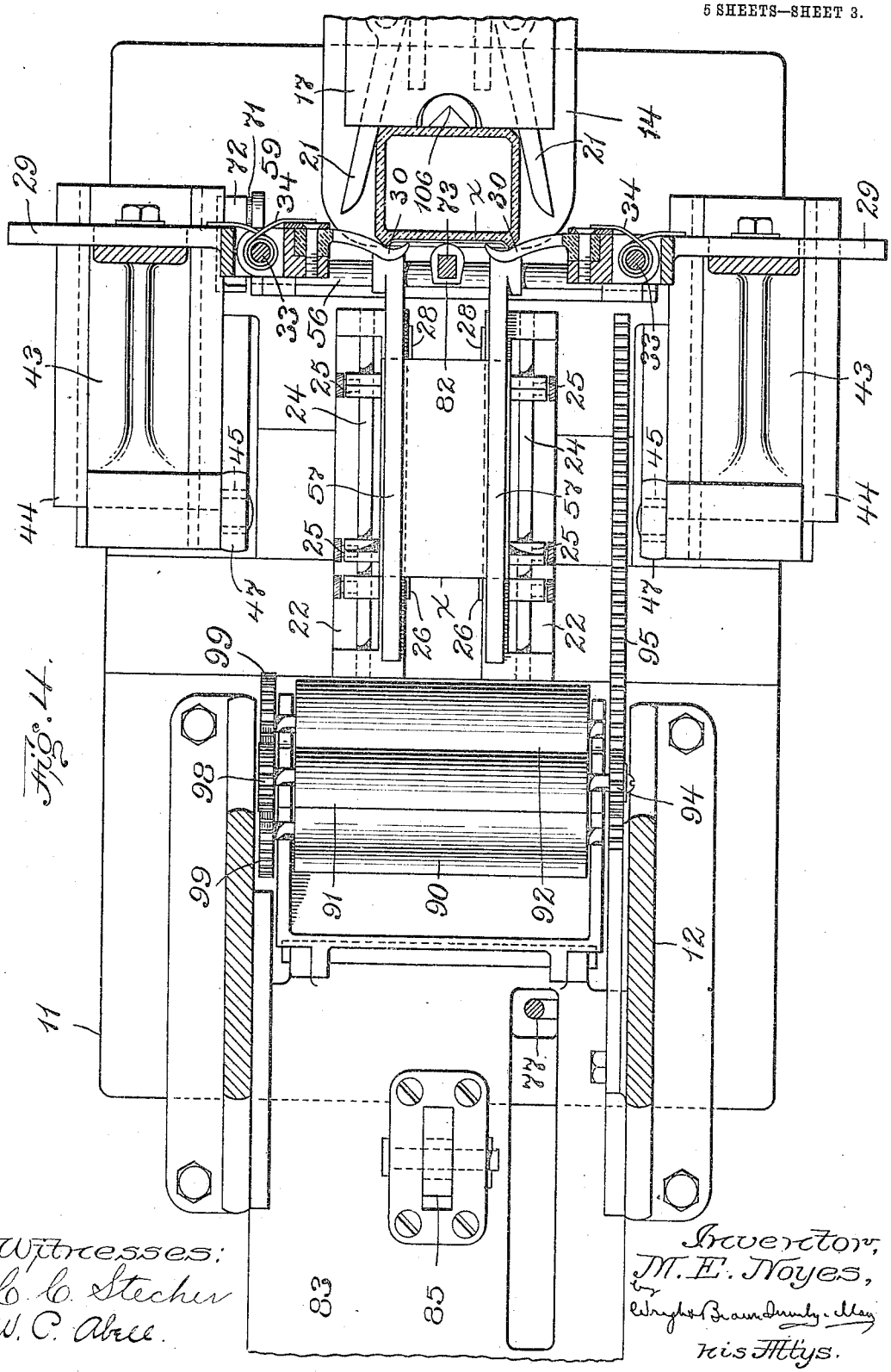

Fig. 4.

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5 SHEETS—SHEET 4.

Fig. 5.

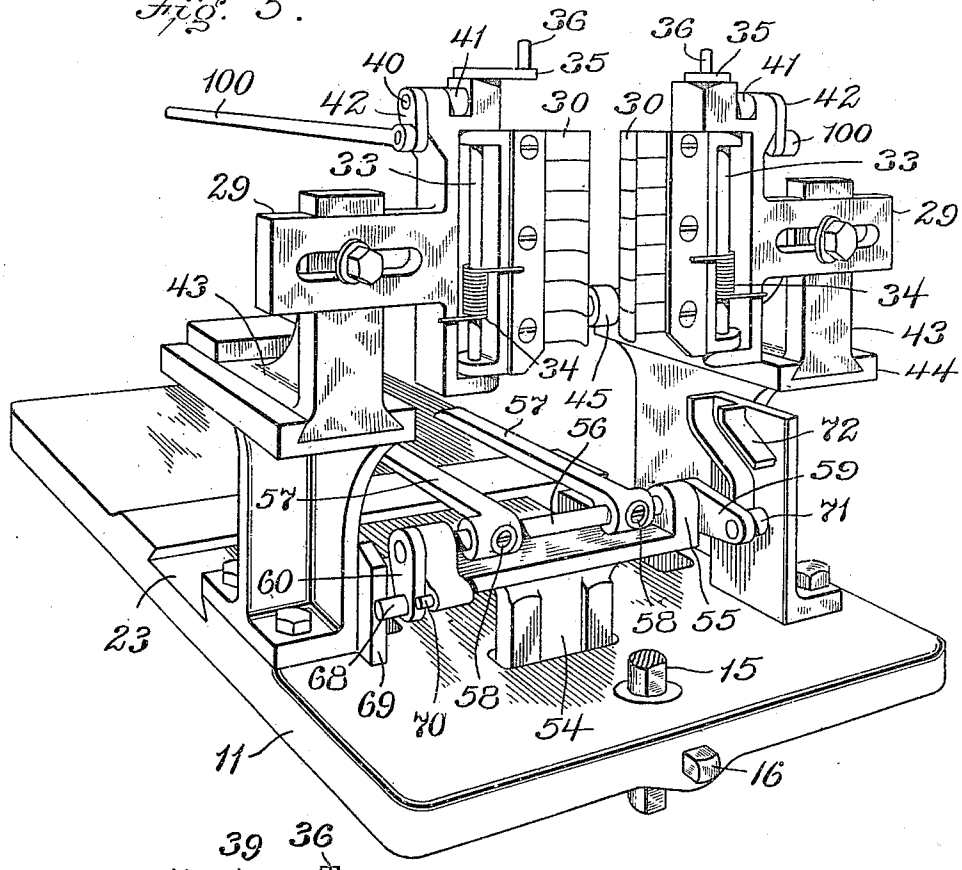
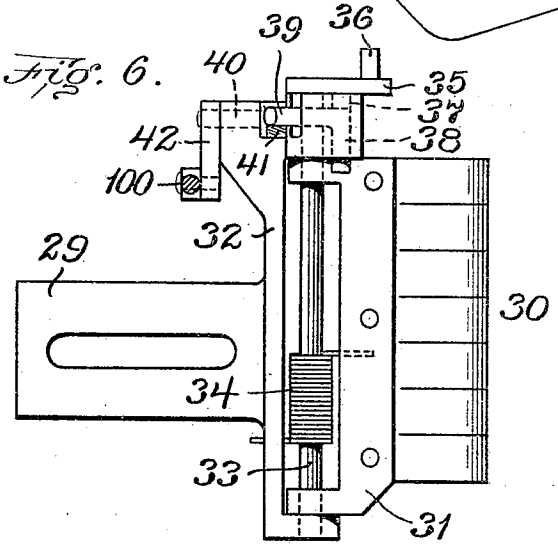


Fig. 6.



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5 SHEETS—SHEET 5.

Fig. 7.

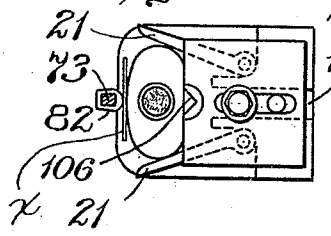


Fig. 9.

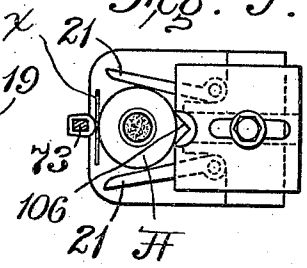


Fig. 11.

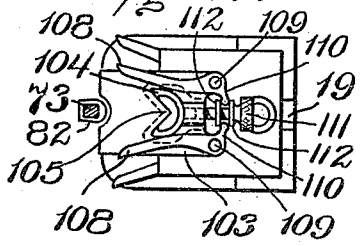


Fig. 8.

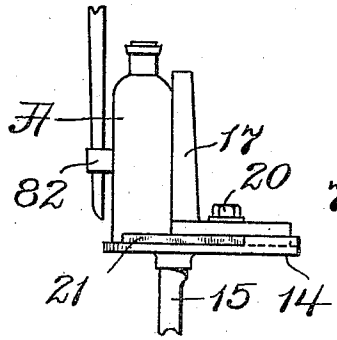


Fig. 10.

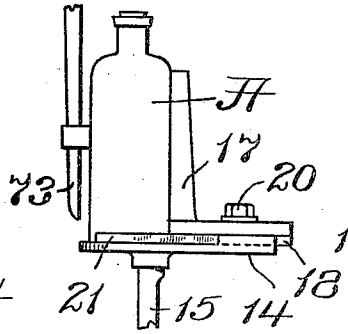
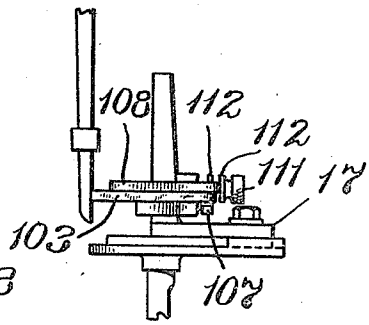


Fig. 12.



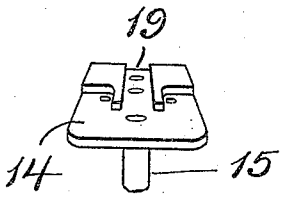


Fig. 13.

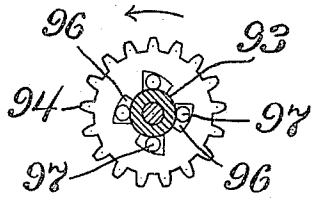


Fig. 14.

Witnesses:
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W. P. Abel.

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by
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His Attys.

UNITED STATES PATENT OFFICE.

MAYHEW E. NOYES, OF HYDE PARK, MASSACHUSETTS, ASSIGNOR TO WILLIAM F. PINKHAM, OF WOLFBORO, NEW HAMPSHIRE.

BOTTLE-LABELING MACHINE.

951,837. Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed May 18, 1905. Serial No. 260,944.

To all whom it may concern:

Be it known that I, MAYHEW E. NOYES, of Hyde Park, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Bottle-Labeling Machines, of which the following is a specification.

This invention relates to bottle-labeling machines and has for its object to provide means for pasting labels and for placing them and wiping them upon bottles of any shape or size suitably held in position.

The principal features of the invention are the label-carrier and the wipers. The label carrier applies the paste to the edges of a label and carries it by reason of the adhesion of the paste to a predetermined position on the bottle. The wipers are each composed of a plurality of flexible wiping fingers which when moved past the bottle press the label thereagainst and wipe from the central portion thereof toward both sides simultaneously. The wipers are hinged and provided with means for holding them open during their return movement and means for holding them closed during the working stroke.

On the drawings, forming a part of this specification,—Figure 1 is a side elevation of a labeling machine constructed in accordance with the present invention. Fig. 2 is a front elevation thereof. Fig. 3 is a vertical section of the upper parts in a different position. Fig. 4 is a horizontal section on the line 4—4 of Fig. 3. Fig. 5 is a perspective view of the wiper and carrier mechanisms. Fig. 6 is a rear elevation of one of the wipers in closed position. Figs. 7 to 12 inclusive show the bottle-holder adjusted for bottles of various shapes. Fig. 13 is a perspective view of the base-plate of the bottle-holder. Fig. 14 is a detail of the paste-roll driving pinion.

The various elements and actuating mechanisms therefor are installed upon a base 10 upon which is supported a bed 11, an arch 12, and a horn 13 overhanging the bed.

The bottle A to be labeled is supported upon a plate 14 affixed to the top of a vertically adjustable post 15, extending through the bed 11 and held by a set-screw 16.

17 is a bracket having a tongue 18 which fits in a groove 19 in the plate 14. Said bracket serves as a backer for the bottle and is adjustably clamped to the plate 14 by a set-screw 20.

21 21 are guide-fingers pivoted upon the plate 14 and adapted to be engaged and held at any desired angle by the bracket 17 when the latter is clamped by the screw 20. Said guides serve to position the bottle and hold it against lateral movement on the plate 14.

The labels *x* are supported upon a label-holder comprising two independently movable supports 22 which fit in a dovetailed groove 23 extending laterally across the bed 11. Each of said supports has a fixed bar 24 upon which are adjustably mounted three upright guides 25 25 26 which may be slid to any position on the bar and held by set-screws 27. A guide 28 corresponding to the guide 26 is affixed to the forward end of each support 22. A pile of labels to be used is placed, faces down, so that their side edges rest upon the supports 22. Said supports are so spaced that the inner faces of the guides 25 touch but do not bind against the side edges of the labels, and the guides 26 are positioned on the bars 24 so that the top and bottom edges of the labels are touched but not cramped by the guides 26 and 28 respectively.

The wipers, indicated at 30, are identical except that one is right-hand and the other left-hand. A description of one, however, will serve for both. The wiper-portion which is adapted to engage the label and press it upon the bottle, is composed of tough flexible material, preferably rubber. Said portion is clamped in a bracket 31 which is affixed to a rod 33 and thereby hinged in a yoke 32. A spring 34 coiled about the rod 33 and engaging the yoke 32 and the bracket 31 exerts its pressure to swing the wiper backward. An arm 35 having an upright pin 36 affixed thereto is secured to the upper end of the rod 33, above the yoke 32, for the purpose of swinging the wiper forward, as herein explained. The upper portion of the yoke 32 is made large enough to provide a socket 37 for a vertical latch-pin 38. Said pin has a horizontal extension 39 and is adapted to drop by gravity behind the top of the bracket 31 when the wiper is swung forward, as hereinafter explained, and so hold it against the pressure of the spring 34.

40 is a stud extending into the yoke 32 and having a finger 41 affixed to its inner end and

an arm 42 affixed to its outer end. The free end of the finger 41 extends under the extension 39 of the pin 38, and when the stud 40 is rocked by movement of the arm 42, as herein explained, the finger 41 lifts the pin 38, thereby releasing the wiper and allowing it to swing backward by reason of the pressure of the spring 34.

The yokes 32 32 have slotted extensions 29 by which they are adjustably clamped to supports or cross-heads 43 mounted in longitudinal extended guides in brackets 44 secured upon the bed 11. Said cross-heads are provided with overhanging anti-friction rolls 45 which occupy radial slots 46 in the free ends of arms 47 extending through openings in the bed 11 and secured upon a rock-shaft 48 mounted in suitable bearings on the base 10. The shaft 48 also carries an arm 49 between the arms 47, at the end of which is a trundle-roll 51 in operative engagement with a cam 52 keyed upon the power shaft 50 mounted in bearings in the base 10. As the shaft 48 is oscillated by the cam 52, the arms 47 reciprocate the crossheads 43, carrying the wipers. As previously stated, the wipers are normally held open or back by the springs 34 so that when the cross-heads are moved rearward or toward the arch 12, the wipers do not touch the bottle, (see Figs. 1 and 2). As the cross-heads approach their rearward limit of movement, the pins 36 on the arms 35 engage a rod 53 mounted in the forward end of the horn 13 and extending therefrom toward both sides of the machine. Continued movement of the cross-heads after the movement of the pins 36 is arrested by the rod 53 swings the wipers toward each other allowing the pins 38 to drop behind the brackets 31, as hereinbefore explained, and so hold the wipers in their operative position, as shown in Figs. 3, 4 and 5. Upon the subsequent forward movement of the wipers, they engage the bottle and yield sufficiently to pass by it, wiping over the side edges of the bottle in doing so. It will be noticed that the operative edge of each wiper is incised at intervals producing a plurality of independent yielding portions. By reason of so cutting the wipers some of the portions are adapted to enter dished surfaces with which some bottles are formed. In any case, however, the several portions of the wiping edges conform to any irregularity in the surface of the bottle.

The labels are pasted and transferred from the pile on the label-holder to the bottle by means of a label-carrier. Said carrier comprises a slide 54 mounted in vertically extended guides 65 secured to the bed 11, and upon the top of which is a head 55 in which is journaled a rock-shaft 56. Said rock-shaft carries two adjustable carrier-arms 57 secured thereto by set-screws 58, and two rock-arms 59 and 60, one at each end, outside the head 55. The arms 59 and 60 are affixed to the shaft 56 at an angle of approximately ninety degrees relatively to each other, for a purpose hereinafter explained. The slide 54 is adapted to drop by gravity and to be raised by an arm 61 pivoted to the base 10 by a stud 62 and carrying a trundle-roll 63 which rests upon a cam 64 keyed upon the shaft 50. The free end of the arm 61 extends between the guides 65 and through a slot 66 in the slide 54. A roll 67 carried by the slide rests upon the arm 61 and so supports the slide. When the slide is down as in Figs. 3, 4 and 5, the carrier arms extend toward the rear, and when correctly set to conform to the width of the labels, they extend between the upright label guides 26 28 and 25 25 and rest upon the side edges of the uppermost label. A pin 68 on the arm 60 engages the edge of an upright plate 69 affixed to the bed 11, preventing the shaft 56 from rocking and so supporting the slide 54 whose weight is sustained by the pile of labels. Upon upward movement of the arm 61 the slide 54 is raised, and the arm 60 being prevented by the plate 69 and a pin 70 from rocking, causes the carrier arms 57 to be raised bodily therewith. The carrier-arms having been previously coated with paste, as hereinafter described, carry with them the label upon which they rested. As the slide 54 continues to rise, the pin 68 on the arm 60 escapes past the edge of the plate 69, and a roll 71 on the arm 59 engages a fixed cam 72 secured upon the bed 11. Said cam arrests the upward movement of the roll 71 and swings it toward the rear into a vertical plane with the shaft 56. This movement causes the carrier arms 57 to swing upward to a vertical position as shown in Figs. 1 and 2, placing the label close to the bottle.

73 is a stripper mounted in the end of the horn 13 and fulcrumed upon the rod 53. The upper end of said stripper is connected by a connecting rod 74 to one arm of a bell-crank lever 75 fulcrumed upon a stud 76 above the arch 12. The other arm of the lever 75 is connected by a connecting rod 77 to one end of a lever 78 fulcrumed upon a stud 79 on the base 10. The other end of the lever 78 carries a trundle-roll 80 which cooperates with a cam 81 on the shaft 50 and when actuated thereby causes the stripper 73 to swing from a rearward position to the position indicated by full lines see Fig. 3. The stripper is provided with a rubber pad or sleeve 82 which engages the label between the carrier arms and spanks it against the bottle, remaining in that position until the label is wiped upon the bottle. The carrier is allowed to descend as soon as the stripper clamps the label against the bottle. In descending, the carrier arms first swing rearward and downward, brushing past the edges

of the recently placed label, and are given a fresh coat of paste, as will be explained.

83 is a reciprocating carriage mounted in horizontal guides 84 on the sides of the arch 12. Said carriage is reciprocated from front to rear by an arm 85 pivoted upon a stud 86 on the base and having a roll 87 coöperating with a cam 88 on the shaft 50. A paste-pan 89 is secured to the forward end of the carriage, and is provided with a paste-roll 90 which is journaled in the pan, and two idle rolls 91 and 92 journaled outside the pan, but all in rolling contact. The shaft 93 of the roll 91 has on one end a pinion 94 which intermeshes with a rack 95 secured to the arch 12. Said pinion is loose on the shaft 93 and held thereon by a nut and washer. The pinion contains a roller clutch comprising pockets 96 in which are rollers 97 which grip the shaft when the pinion rotates in the direction of the arrow in Fig. 14. A pinion 98 affixed to the other end of the shaft 93 intermeshes with and drives pinions 99 affixed to the rolls 90 and 92, thus causing the paste in the pan to be transferred to the roll 92. When the label carrier raises a label to the bottle the carriage 83 is moved forward to the position shown in Fig. 1. Then, when the carrier-arms 57 start to rock toward the rear and descend they engage the surface of the roll 92 and force it toward the rear, the cam 88 which moves the carriage forward, being formed to permit rearward movement of the carriage at this point. As the carriage is moved toward the rear by the carrier-arms, the pinion 94 is rotated in the direction of the arrow, by the rack 95 and the paste-rolls are all rotated thereby, causing the roll 92 to wipe fresh paste along the entire label engaging face of each carrier arm. When the carrier arms reach a horizontal position, they are prevented from rocking further by the arms 59 and 60 already described, and the carrier descends bodily until the arms 57 once more rest upon the pile of labels. Any further downward motion of the arm 61, after the carrier engages the pile of labels, is lost by reason of the slot 66 in the slide 54. The slide, however, descends to a greater extent each time as the pile of labels decreases, and so compensates by gravity for the variation in the pile.

100 are rods whose forward ends are pivoted to the free ends of the fingers 42 and whose rear ends extend through bosses 101 on the arch 12. Said rods slide back and forth through the bosses 101 when the wipers are reciprocated, but they have stop-nuts 102 which impinge against said bosses and arrest the forward movement of the rods. This causes the rods to rock the fingers 42, the studs 40 and the fingers 41, thereby lifting the locking pins 38 at the completion of the operative stroke of the wipers, and allowing the wipers to swing back as previously described, out of the way, to be re-set by the rod 53 held in the horn 13.

Figs. 11 and 12 show a device attached to the bottle-support for small bottles. Said device comprises a plate 103 having an aperture 104 for the reception of the upstanding portion of the bracket 17. 105 is a protuberance on the plate which fits into a vertical groove 106 in the outer face of said upstanding portion for the purpose of maintaining a correct position of said plate. 107 is a set-screw threaded into said plate and adapted to abut against the opposite face of said upstanding portion and so clamp the plate to said portion at any desired height. The plate is also provided with guide-fingers 108 for holding a bottle placed thereon against undue lateral movement. Said fingers are pivoted on studs 109 upon the upper surface of said plate and have bell-crank extensions 110 which extend toward each other. 111 is a thumb-screw threaded into said plate between said fingers, and having collars 112 112 between which said extensions 110 project from opposite sides. By reason of this construction the free ends of the fingers 108 may be moved toward or from each other simultaneously, by movement of the thumb-screw, to provide more or less space therebetween, according to the width of the bottle.

From the foregoing description it will be apparent to those skilled in the art to which this invention relates that the machine which I have illustrated as the best embodiment of the invention now known to me possesses numerous features of advantage which I may briefly mention. First, the bottle support is so located that in placing a label around the body of the bottle the latter is in an upright position in which it may be placed with the greatest ease on the part of the operator, and from which it may be as easily removed. The label carrier and the label wipers are independent and they are both adjustable to adapt them for operation in connection with bottles and cans of cylindrical or polygonal form and of different diameters. The label carriers are normally recumbent and rest upon the top label of the pile automatically adjusting themselves in accordance with the height of the pile. They rock from a substantially horizontal position to a substantially vertical position and at the same time are raised bodily more or less in accordance with the height of the pile to bring a label into proper position with relation to a bottle on the support. In addition to this, however, the bottle support is itself adjustable vertically to properly locate the bottle with relation to the carriers. In addition, moreover, the adjustable guides forming a part of the label box or receptacle permit of the

adjustment of the labels relatively to the carrier so that different labels may be caused to adhere to the carrier at different radial distances from its axes so that said labels may be affixed to the bottle at any points between the ends thereof. This I regard as quite an important feature in the practical use of the machine, since it permits the placing of a label around the small neck of a bottle with as great ease and facility as around the body portion or the lower end of the bottle. The paste tank or pan is located normally in a rearward position and is brought automatically to a location where the distributing roll may be engaged by the under face of the label-carrier. I utilize this sliding movement of the paste tank by employing means for transmitting the sliding motion of the pan into a positive rotation of the transferring or distributing rolls so that the paste may be positively wiped onto the label-carrier instead of merely bringing the distributing roll into rolling contact with said carrier.

I desire to point out the fact that the label wipers have a novel and peculiar construction. Not only is each resilient wiper divided to provide a plurality of independent yielding fingers, but at the same time these fingers are so curved as shown in Fig. 4, as to provide ends which will project into a recess in the face of the bottle. These wipers are automatically swung into inactive positions rearwardly after they have performed their functions, and as soon as they are released by the mechanism hereinbefore described in detail. They occupy this position during the reversed movement of the carriage upon which they are mounted, and are again set into operative position as the carriage reaches the rearward limit of its movement.

The phraseology which I employ is for the purpose of description and not of limitation, and, moreover, it will be understood that the invention is capable of various other embodiments than the one which I have illustrated.

Having thus explained the nature of the invention, and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made, or all of the modes of its use, I declare that what is claimed is:—

1. A bottle-labeling machine comprising means for supporting a bottle stationarily in an upright position, means for presenting a label to the upright surface of such bottle, vertically hinged label wipers mounted on horizontally reciprocating slides adapted to carry said wipers past said bottle and back again, and means for actuating said wipers to cause them to wipe the label on the bottle.

2. A bottle labeling machine comprising means for stationarily supporting a bottle in an upright position, a holder for labels arranged horizontally in a plane below said bottle, means for lifting and placing against the upright surface of a bottle so supported a label, yielding hinged wipers mounted on supports adapted to reciprocate in a horizontal plane past said bottle and back again, means for pressing the elevated label against the bottle, and means for actuating said wipers.

3. A bottle labeling machine comprising means for stationarily supporting a bottle, means for lifting a label from a horizontal plane below said bottle and presenting it vertically to said bottle, and means having a rectilinear horizontal movement for wiping upon the bottle a label so presented.

4. A bottle labeling machine comprising means for stationarily supporting a bottle in an upright position, means for supporting a plurality of labels in a horizontal plane below the plane of the bottle, means for transferring a label so supported from a horizontal to a vertical position to the upright surface of the bottle, consisting of a vertically movable slide and a relatively movable label carrier mounted on said slide, vertically hinged wipers movable in a horizontal plane to and past the bottle and back again, and means for actuating the wipers to wipe the label on the bottle.

5. A bottle-labeling machine comprising means for supporting a bottle in an upright position, means for supporting a pile of labels each extending horizontally, means for transferring a label so supported to a position against the bottle and extending transversely of said first position, a stripper for holding the label as the transferring means retire, wipers having a parallel horizontal movement for wiping the label upon the bottle, and means for actuating said wipers.

6. A bottle-labeling machine comprising means for supporting a bottle, means for supporting a pile of labels, a vertically movable swinging label carrier adapted to transfer an adhesive label from said pile to the bottle, a longitudinally reciprocatory paste-pan having a paste-roll adapted to be engaged by said carrier and moved by the same in approaching the pile of labels to coat the label carrier with paste, and means independent of said carrier for rotating said paste-roll in one direction only.

7. A bottle-labeling machine comprising means for supporting a bottle, means for supporting a pile of labels, a rectilinearly slidable paste-pan having a train of paste-rolls geared together, a vertically swinging label carrier mounted upon and hinged to a vertically movable slide and adapted to transfer an adhesive label from said pile to the bottle and to engage one of said rolls and to cause said paste-pan to slide back in

a horizontal plane in approaching the labels, a gear-rack extending parallel to the path of movement of said paste-pan, and a pinion on one of said rolls intermeshing with said rack and adapted to rotate said rolls unidirectionally when moved by said label carrier to coat the label carrier with paste.

8. A bottle-labeling machine comprising means for supporting a bottle, fixed means for supporting a pile of labels beneath the horizontal plane of the bottle, a label carrier mounted on a slide movable in rectilinear guides and adapted to descend loosely upon the pile of labels as the pile diminishes by gravity, and means for raising said carrier from said pile of labels to the bottle.

9. A bottle-labeling machine comprising a bottle support, means for pasting and presenting a label to the bottle in position to be wiped thereon, and vertically hinged wipers mounted on reciprocatory supports slidable in planes intersecting the bottle to wipe said label thereon, each of said wipers composed of vertically arranged independently yielding sections of flexible material and having curved edges substantially as and for the purpose set forth.

10. A bottle-labeling machine comprising means for supporting a bottle in an upright position, means for supporting a pile of labels beneath the horizontal plane of the bottle, a label-carrier pivotally mounted upon a vertically movable sliding member, means adapted to raise said slide toward the bottle and to permit it to descend by gravity, and means for swinging said label carrier to extend horizontally across the pile of labels when lowered and to swing said carrier to extend vertically when said slide is raised.

11. A bottle-labeling machine comprising means for supporting a bottle in an upright position, means for supporting a pile of labels beneath the horizontal plane of the bottle, means adapted to compensate for variation in the height of the pile of labels for engaging and transferring, when suitably coated with adhesive paste, a label from the pile to the upright surface of the bottle, means for coating said transferring means with paste previous to its contact with the label, and horizontally movable wipers each comprising a plurality of independently flexible portions adapted to wipe a label over irregular surfaces of the bottle.

12. A bottle-labeling machine comprising a pair of reciprocatory supports mounted in horizontal rectilinear guides, a pair of wipers hinged to said supports on vertical axes, means for supporting a bottle stationarily and in an upright position between said guides, springs for normally swinging said wipers away from each other upon said vertical axes, means for reciprocating said wiper supports, means for closing said wipers toward each other, means for locking said wipers in closed position and means for releasing said wipers.

13. A bottle-labeling machine comprising a pair of reciprocatory wiper supports mounted in horizontal rectilinear guides, means for reciprocating said supports, means for supporting a bottle stationarily and in an upright position between said guides, a pair of wipers hinged to said supports on vertical axes, means for normally swinging said wipers together when moving in one direction, means for locking said wipers when closed together, and means adapted to release said wipers when moving in the opposite direction.

14. The combination with a bottle-labeling machine, of a bottle-support comprising a horizontal base, a bracket adapted to be adjustably secured to said base and having a perpendicular portion extending upwardly from one edge thereof, and a pair of fingers pivotally mounted upon vertical studs in the upper surface of said base, and adapted to be clamped between said base and said bracket.

15. The combination with a bottle-labeling machine, of a bottle support comprising a base, a bracket adapted to be adjustably secured to said base, and having a vertical extension flush with one edge thereof, a vertical groove in the outer face of said extension, a plate having an aperture for the reception of said extension, and a protuberance adapted to enter said groove, means for securing said plate to said extension, a pair of fingers pivotally mounted upon the upper surface of said plate on vertical studs, and means adapted to adjust said fingers simultaneously and to lock said fingers against undue movement.

In testimony whereof I have affixed my signature, in presence of two witnesses.

MAYHEW E. NOYES.

Witnesses:

M. B. MAY,

C. C. STECHER.