No. 707,738. Patented Aug. 26, 1902.

C. J. WARREN.

MACHINE FOR APPLYING LABELS TO BOTTLES.

Application filed Dec. 7, 1901.)

(No Model.) 4 Sheets—Sheet 1.

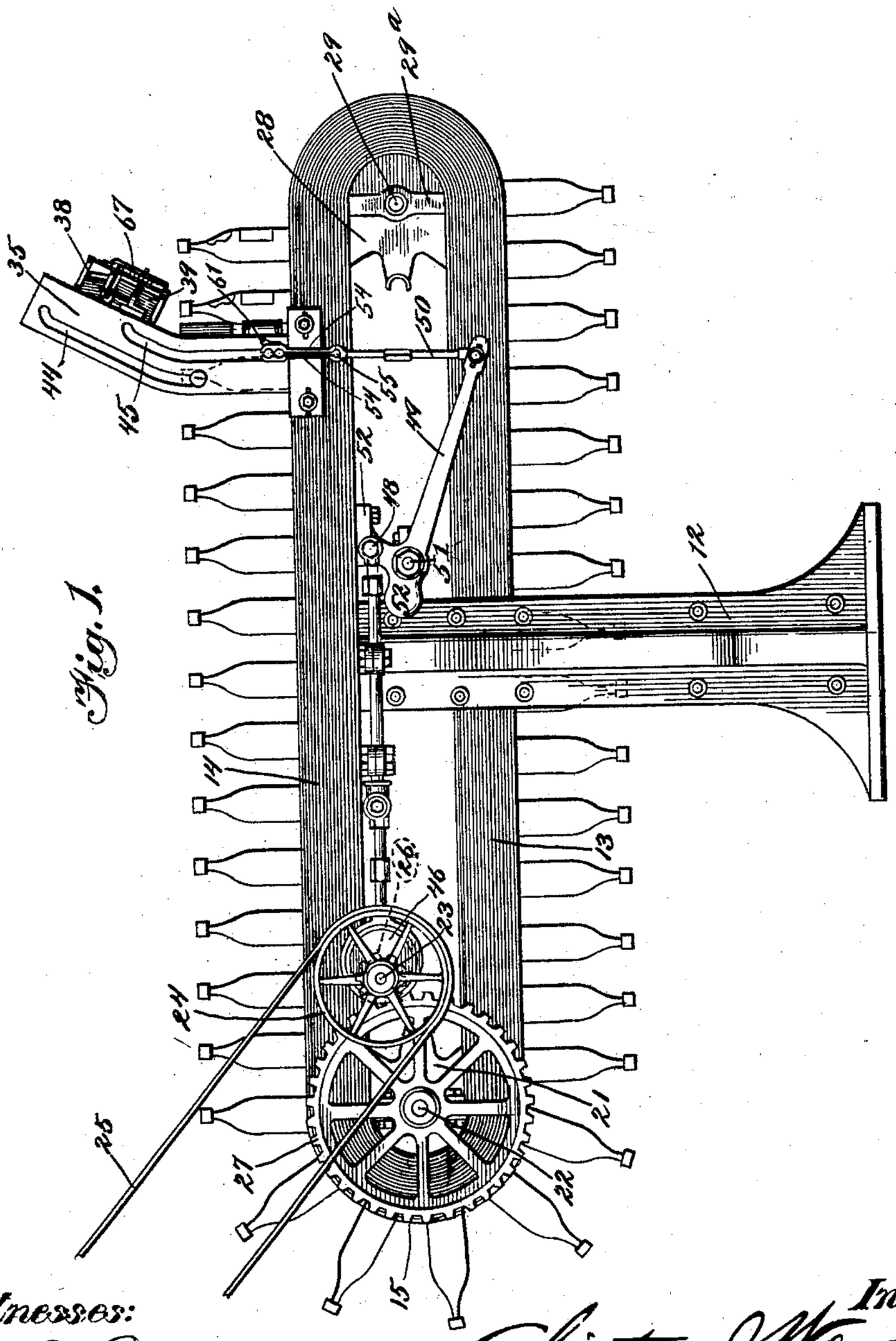

Fig. 1.

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(No Model.) 4 Sheets—Sheet 2.

Fig. 2.

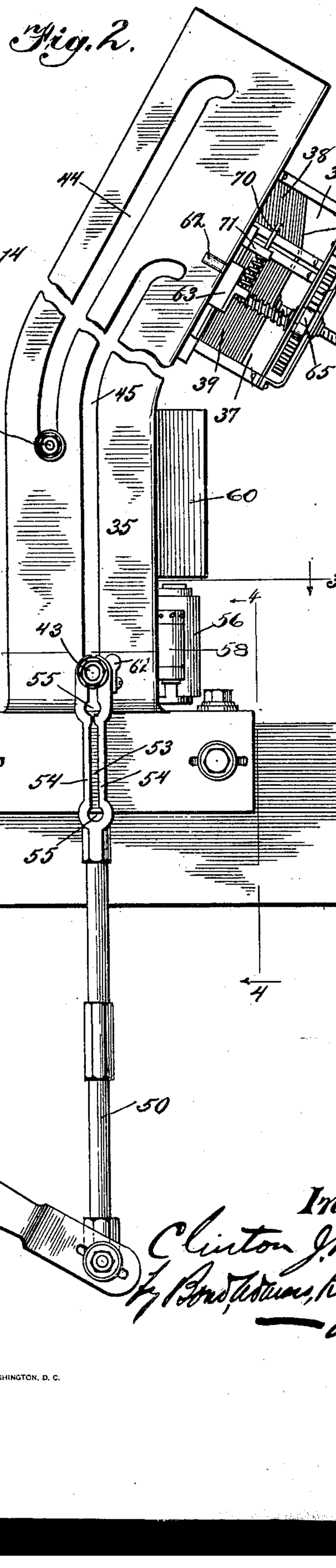
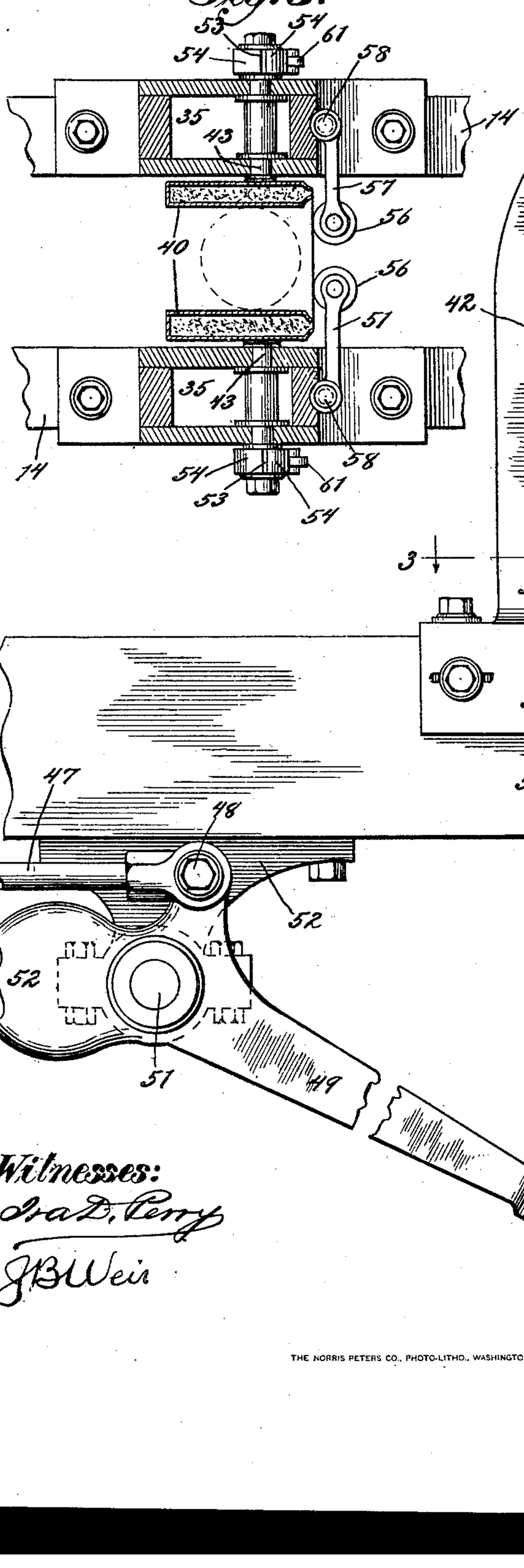


Fig. 3.



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(No Model.) 4 Sheets—Sheet 3.

Fig. 6.

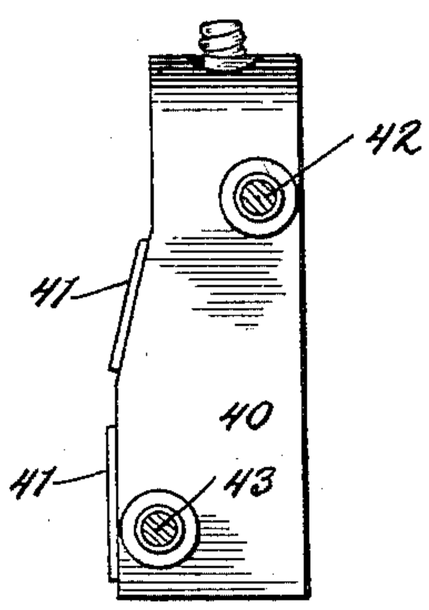


Fig. 4.

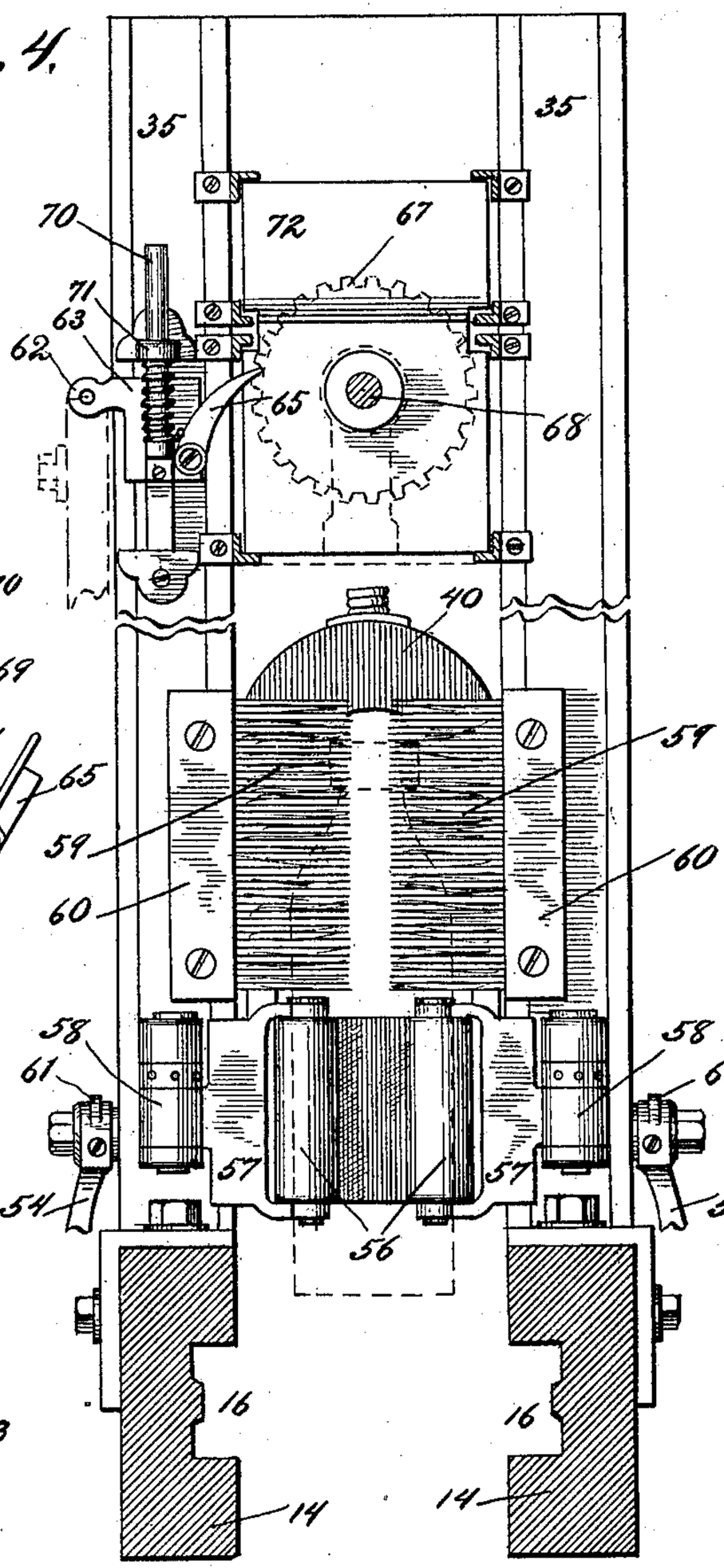


Fig. 5.

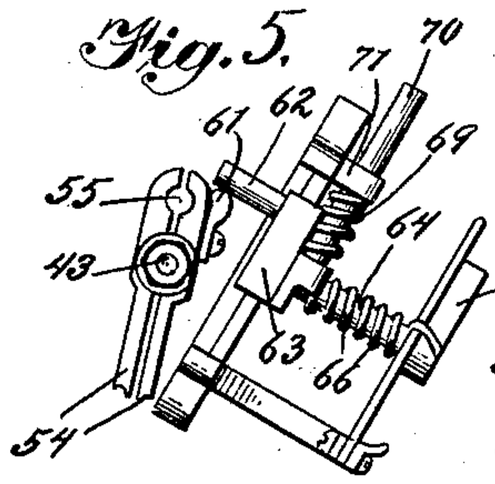
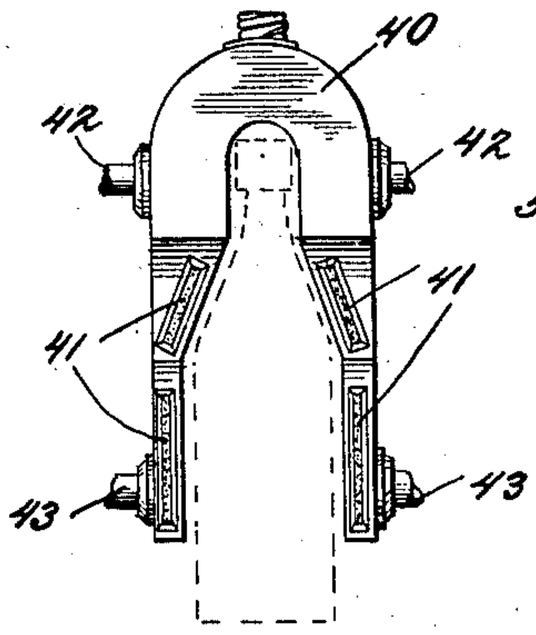


Fig. 7.



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(No Model.) 4 Sheets—Sheet 4.

Fig. 8.

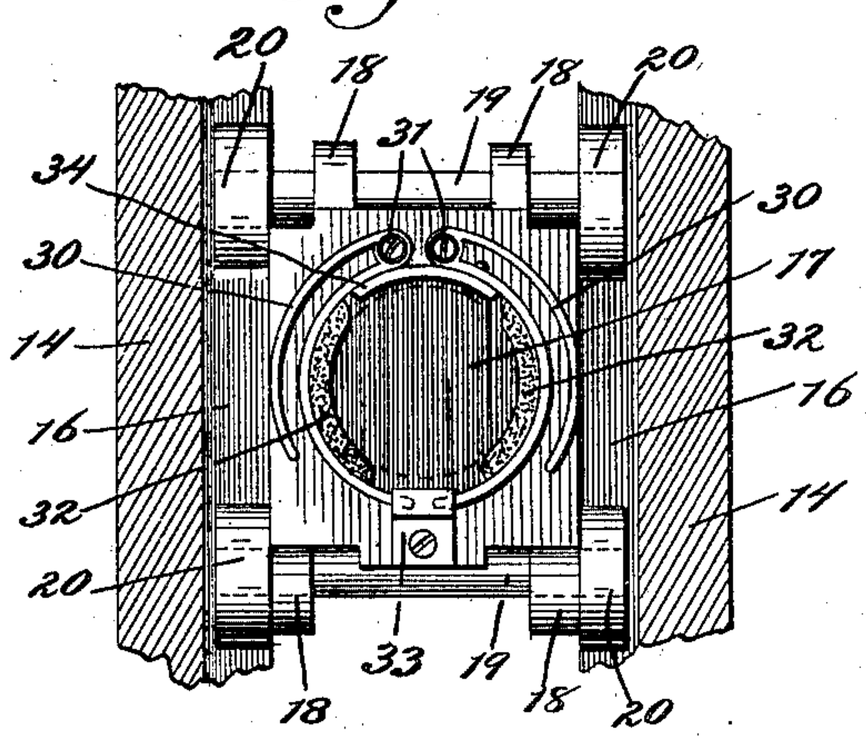
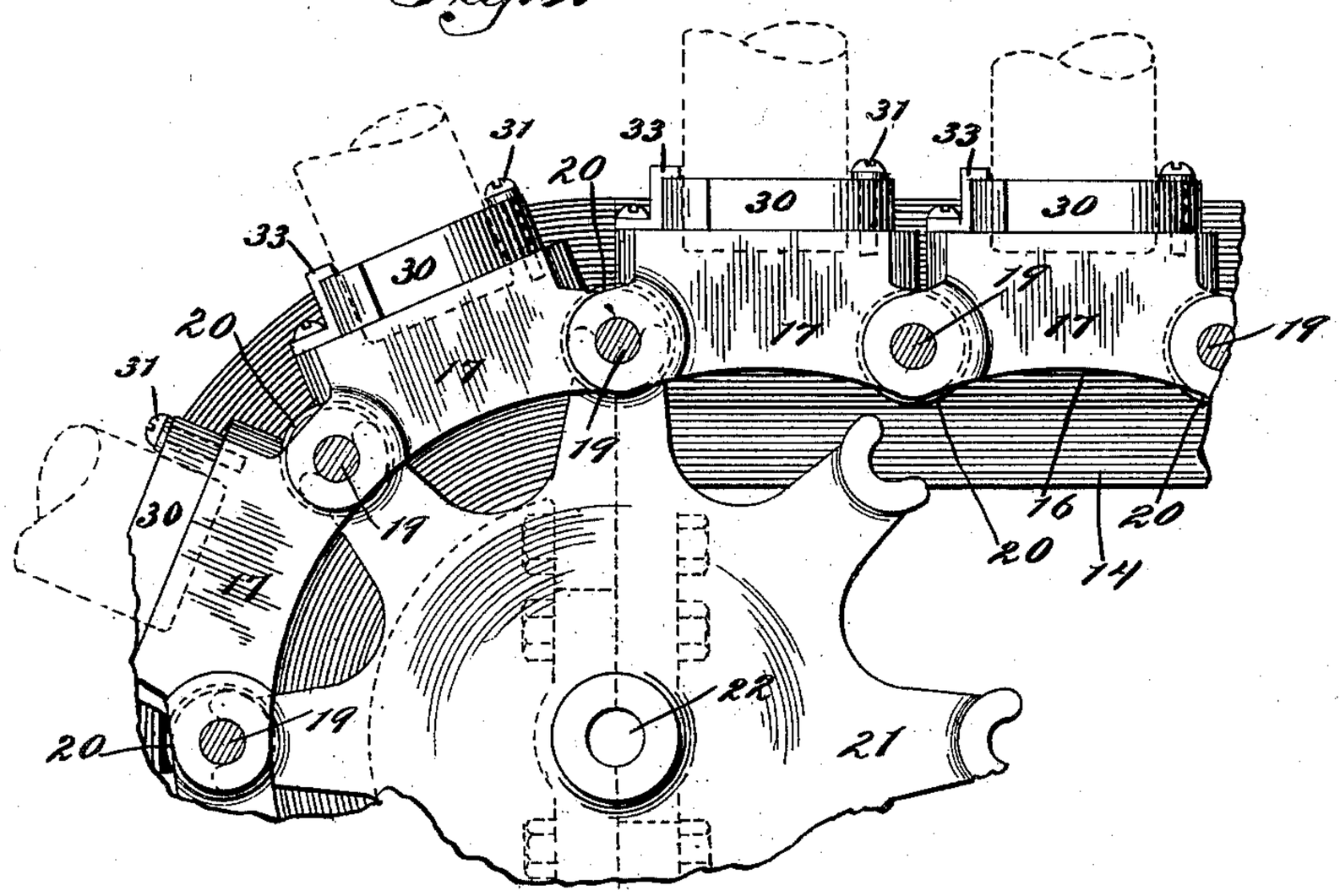


Fig. 9.



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UNITED STATES PATENT OFFICE.

CLINTON J. WARREN, OF CHICAGO, ILLINOIS.

MACHINE FOR APPLYING LABELS TO BOTTLES.

SPECIFICATION forming part of Letters Patent No. 707,738, dated August 26, 1902.

Application filed December 7, 1901. Serial No. 85,000. (No model.)

To all whom it may concern:

Be it known that I, CLINTON J. WARREN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Applying Labels to Bottles, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to machines for applying labels to bottles.

The leading object of the invention is to provide means for applying such labels to the bodies and necks of a series of bottles while such bottles are being moved by an endless carrier.

Other objects of my invention are to provide improved label holding and delivering devices, to provide improved means for applying paste to the backs of labels to cause them to adhere to the bottles, to provide improved means for carrying the labels across the line of travel of the moving bottles, so as to present them in proper position to the bottles, to provide devices for smoothing the labels after being applied to the bottles, and to improve generally the construction and operation of machines designed for applying labels to bottles or other articles.

I accomplish these objects by means of the devices shown in the drawings and hereinafter specifically described, and that which I claim as new will be set forth in the claims.

The labeling mechanism forming the subject-matter of this application is shown and described in my pending application, Serial No. 60,524, filed May 16, 1901, in which said application is also shown various other sets of mechanism for operating upon bottles both before and after they have been labeled, and all acting, as does the labeling mechanism, while the bottles are being continuously moved forward through the machine.

In the accompanying drawings, Figure 1 is a side elevation of the complete machine. Fig. 2 is an enlarged detail, being a side elevation of the labeling mechanism and a portion of the actuating means. Fig. 3 is a cross-section taken at line 3 3 of Fig. 2. Fig. 4 is a section taken at line 4 4 of Fig. 2 and showing the label-supporting mechanism partly in section. Fig. 5 is a detail showing the label-compression devices. Fig. 6 is a side elevation of the movable paste-carrier, the guiding-pins attached to such carrier being shown in section. Fig. 7 is a front elevation of the movable paste-carrier. Fig. 8 is a detail, being a plan view of a section of the endless bottle-carrier and one of the bottle-clamps secured thereon, a portion of the frame for such endless carrier being shown in section; and Fig. 9 is a detail of a portion of the endless bottle-carrier and its frame and the sprocket-wheel that drives such carrier.

Referring to the drawings, in which corresponding parts are indicated by the same reference-numerals, 12 indicates one of a pair of suitable supporting-standards which may be arranged, as shown, at the center of the machine, or a pair of such standards may if deemed advisable be located at each end of the machine. Upon these standards is located a framework consisting of two pairs of longitudinal beams 13 14, 13 indicating the lower beams, and 14 the upper beams, the upper and lower beams being connected by curved end pieces 15. The upper beams and the lower beams and their connecting end pieces are separated sufficiently to provide a space for a moving carrier to be located between them, such space being clearly indicated in Fig. 4, where the upper pair of beams 14 are shown in section, and it will be understood that this same space that is shown in that figure is continued, so as to be the same at all points between the pair of lower beams and the pair of upper beams and their connecting ends. The carrier referred to is an endless one and is composed of comparatively heavy blocks 17, each block having ears 18 at its ends, through which pass axles 19, and upon the ends of which axles are journaled rollers 20, these rollers traveling in grooves 16 in the inner faces of the beams 13 14 and their curved end pieces 15.

21 indicates a sprocket-wheel keyed to a shaft 22, mounted in suitable bearings that are secured between the longitudinal beams 13 14 near one of the curved ends 15 thereof. 23 indicates another shaft extending across the machine between the longitudinal beams referred to and suitably secured in bearings supported by the framework of the machine. Upon this shaft 23, at one end thereof, is se-

cured a pulley-wheel 24, over which a driving-belt 25 passes. The shaft 23 carries a small gear-wheel 26, which is keyed thereto and which meshes with another and larger gear-wheel 27, which latter gear-wheel is secured upon a projecting end of the shaft 22, whereby upon the rotation of such larger gear-wheel the sprocket-wheel 21 is driven and by its engagement with the axles 19 of the carrier-wheels 20 moves such carrier forward. At the opposite end of the machine from that at which the devices just referred to are located is arranged another and similar sprocket-wheel 28, over which the carrier travels, this sprocket-wheel 28 being located on a shaft 29, journaled in suitable supports 29^a, secured to the framework. The outer face of each block 17 is provided with a suitable clamp adapted to receive the base of a bottle and hold such bottle firmly in position, so that it will at all times have its neck end projected outward. The form of clamp shown consists of two similar curved metal bands 30, each portion 30 being bent on itself and at the bent portions secured to the blocks 17 by a screw or other pivot 31. The curvature of each portion of the clamp is such as to adapt it to conform to the curvature of the bottle that is to be held, and it is provided on its inner face, as shown, with two oppositely-arranged cushions 32, one of such cushions being provided for each portion 30. The acting portion of the clamp, as shown, forms nearly a complete circle, the two ends approaching closely to each other, as shown by the dotted lines in Fig. 8, and working back and forth beneath a bracket 33 when pressure is applied to or released from the sides of the clamp. The outer ends of each portion of the clamp bear against the sides of the beams 14, as shown in Fig. 8, with sufficient force to cause the cushions 32 to grasp the bottle firmly, so as to hold it securely whether the bottle be upright or inverted. Suitable means may be provided for automatically inserting the bottles within the clamps and disengaging them therefrom, so as to be discharged from the machine, and means for that purpose are shown and described in my said pending application; but as they form no part of my present invention and, so far as my present invention is concerned, may be of any suitable character I have not deemed it necessary to here show or describe them. It is also to be understood that other forms of clamping devices for holding bottles securely upon the carrier may be employed. In the form of bottle-clamp shown the two portions 30 are adapted to be forced apart at the releasing-point by the action of a flat curved spring 34, which, as shown in Fig. 8, is secured at one end to one of the parts 30 and bears at its other and free end against the corresponding part 30. With a series of bottles mounted and suitably held upon the endless carrier and such endless carrier, with the bottles thereon, being continuously driven at a comparatively slow rate of speed and the bottles ready for labeling the labeling operation is accomplished by the means now to be described.

35 indicates two standards secured opposite each other to the two longitudinal beams 14, said standards at their upper ends being bent toward the forward or delivery end of the machine. The upper ends of the standards at their forward and inclined portions are provided with an open framework extending across the machine, which framework is adapted to support within it a large number of labels designed to be attached to the necks and to the bodies of the bottles that are carried by the movable carrier referred to. This framework is divided into two compartments 36 37, adapted to contain, respectively, a bunch of neck-labels 38 and a bunch of body-labels 39. These labels, owing to the inclined position of the supports, and consequently of the framework within which the labels are contained, are inclined forwardly, so that they will not be liable to fall out and down between the standards 35.

40 indicates a movable paste holder or reservoir which, as shown, is divided into two branches or legs, the inner faces of which are approximately bottle-shaped, so as to fit comparatively closely around bottles that are moved between such legs or extensions. This paste-holder is provided on its forward face with a number of openings, in which is compressed some suitable absorbent material 41, through which the paste in the holder can ooze out. At opposite sides of the holder project guiding-pins 42, near the upper end thereof, and near the lower end it is provided with similar pins 43. These pins project through slots 44 45, respectively, in the standards 35, such slots being curved or inclined so as to bring the paste-holder 40, when pushed to its upper position, opposite the two sets of labels 38 39, and when such paste-holder is pushed up to the limit of its motion the pieces of absorbent material 41, that project through the openings in the face of the paste-holder, come against one of the neck-labels and one of the body-labels and cause such labels to adhere to such pieces of absorbent material. This paste-holder is actuated through an eccentric 46, suitably secured to the shaft 23, and an eccentric-rod 47, secured in the usual manner to the eccentric at one end and pivotally secured at its other end, at 48, to the short arm of a bell-crank lever 49, to the other end of which bell-crank lever is pivotally attached a rod 50, said rod 50 being connected to the movable paste-holder. This bell-crank lever is pivoted at 51 to a depending bracket 52, secured to the under face of one of the beams 14, and in rear of its pivotal point 51 it has formed with it a counterweight 52. The operating means are preferably duplicated on each side of the machine in order to insure perfect steadiness and smoothness in the operation

of the paste-holder, but a description of one side only will suffice. The upper end of the rod 50 is provided with a long slot 53, open at its lower end, thus constituting two spring-arms 54 on the upper end of the rod 50. In the opposite faces of these spring-arms are formed notches 55, the object of which will be hereinafter explained.

56 indicates rollers, preferably covered with some yielding substance, said rollers being each carried in a frame 57, which is connected by a spring-hinge 58 to one of the standards 35, such roller being vertically arranged and adapted to lie in the path of the moving series of bottles that are carried on the several blocks 17 of the moving carrier.

59 indicates brushes projecting in from the standards 35 toward the moving series of bottles and each held in position by strips 60, suitably secured to the faces of said standards, the brushes being located, as shown, above the rollers 56.

61 indicates a lug secured to one face of one of the spring-arms 54, at the upper end of such arm, and adapted when the rod 50 is pushed upward to the limit of its movement to contact with a projection 62, carried by a slide 63, located against the front edge of one of the standards 35. This slide carries a forwardly-projecting rod 64, upon the forward end of which is secured a pawl 65, that is held by a spring 66 normally in engagement with a gear 67, fast on a screw-threaded rod 68, mounted in the front portion of the label-carrying framework. The slide 63 is normally held down by a coiled spring 69, surrounding a short stem 70, attached at its lower end to said slide and passing at its upper end through an ear 71, against which the upper end of the spring 69 bears.

72 indicates a follower-plate located within the label-carrying framework and adapted to be pressed against the two piles of labels 38 and 39. Against the outer face of this follower-plate an enlarged head on the inner end of the screw-threaded rod 68 abuts, and as said screw-threaded rod is turned from time to time the piles of labels are slightly forced inward toward the standards 35, so that a set of labels—that is, one for the neck and one for the body of the bottle—will always be presented in proper position to be contacted by the sticky pieces of absorbent material 41 on the face of the paste-holder, and thereby caused to adhere to such paste-holder. Each time that the paste-holder is carried upward to the limit of its motion the lug 61 will abut against the projection 62, raising the slide 63, and through the action of the pawl 65, that moves with the slide, causing the gear-wheel 67 to be turned slightly and, as stated, causing a slight forcing inward of the two piles of labels 38 39. A neck and a body label are each caused to adhere to the face of the paste-holder by reason of the sticky material 41 being brought in contact with them, and upon the withdrawal and downward movement of the paste-holder, through the action of the eccentric 46 and its connecting parts, the paste-holder is drawn down between the standards, so that the labels attached to the holder will be extended across the path of travel of the carrier in position to be contacted by a moving bottle. At this time the pins 43 on opposite sides of the paste-holder 40 will be in the lower notch 55; but as it is necessary that the paste-holder remain stationary in its lower position for a brief space of time in order to allow a bottle to press forward sufficiently to get the label properly shaped to it the provision of the slot 53 at the upper end of the rod 50 is made, as by this construction a further downward movement of the rod 50 can be had while the bottle is pushing its way between the lugs or extensions of the then stationary paste-holder. The spring-arms 54 will spring sufficiently to allow them to be pulled down on the pins 43 until such pins reach one of the series of notches 55, that are near the upper ends of the said spring-arms. By the time the pins 43 have settled in one set of these notches the bottle has progressed far enough to detach the labels from the paste-holder, and by the action of the eccentric 46 and the devices connected therewith the paste-holder is again pushed up and against another set of labels, the pins 43 during the upward movement again springing the arms 54 to permit said pins to settle down to the lower part of the slot 53. As the bottle steadily moves forward, the labels that have been applied are smoothed and brushed into position by the rollers 56 and brushes 59, said rollers and brushes easily giving way to permit the passage of the bottle between them. The various sticky absorbent surfaces 41 will have smeared enough paste upon the back of the labels to cause them when rolled and brushed against the bottle to adhere firmly to such bottle.

By my invention I provide an accurately-working set of devices by which neck and body labels can be quickly and accurately applied to a bottle while said bottle is being continuously moved through the machine, which method of applying them is one of especially great value when used in connection with the other devices or sets of devices mounted upon the same frame, as shown and described in my said pending application, Serial No. 60,524, in which application other devices or sets of devices are shown and described for operating both before and after the label-pasting operation upon the same bottles while they are being moved through the machine.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a carrier adapted to receive and hold a bottle, of means for moving said carrier, a label-supporting device secured over the carrier and adapted to contain a pile of labels, a movable paste-reser-

voir carrying an adhesive substance and adapted to be moved up and against one of said pile of labels for temporarily attaching it thereto, and means for withdrawing said reservoir carrying the label and causing said reservoir to present said attached label in the path of the bottle while said bottle is being moved.

2. The combination with a carrier adapted to receive and hold a bottle, of means for moving said carrier, a movable paste-holder carrying an adhesive substance and formed with two branches or legs so as to permit a bottle to pass between the same, a label-supporting device secured over the carrier and adapted to contain a pile of labels, means for moving said paste-holder against one of said pile of labels for temporarily attaching it thereto, and means for withdrawing said paste-holder so that its legs or branches will be at opposite sides of the moving bottle and the label carried thereby be directly in the path of the moving bottle so that such bottle forces it from the paste-holder as said bottle moves between the branches or legs thereof, substantially as specified.

3. The combination with a carrier adapted to receive and hold a bottle, of means for moving said carrier, a movable paste-holder carrying an adhesive substance and formed with two branches or legs so as to permit a bottle to pass between the same, a label-supporting device secured over the carrier and adapted to contain a pile of labels, means for moving said paste-holder against one of said pile of labels, for temporarily attaching it thereto, means for withdrawing said paste-holder so that its legs or branches will be at opposite sides of the moving bottle and the label carried thereby be directly in the path of the moving bottle so that such bottle forces it from the paste-holder as said bottle moves between the branches or legs thereof, and means for pressing said label firmly into position on said bottle, substantially as specified.

4. The combination with a carrier adapted to receive and hold a bottle, of means for moving said carrier, a movable paste-holder carrying an adhesive substance and formed with two branches or legs so as to permit a bottle to pass between the same, a label-supporting device secured over the carrier and adapted to contain a pile of labels, means for moving said paste-holder against one of said pile of labels, for temporarily attaching it thereto, means for withdrawing said paste-holder so that its legs or branches will be at opposite sides of the moving bottle and the label carried thereby be directly in the path of the moving bottle so that such bottle forces it from the paste-holder as said bottle moves between the branches or legs thereof, and a brush for smoothing said label onto said bottle as it is carried forward, substantially as specified.

5. The combination with a carrier adapted to receive and hold a bottle, of means for moving said carrier, a movable paste-holder carrying an adhesive substance and formed with two branches or legs so as to permit a bottle to pass between the same, a label-supporting device secured over the carrier and adapted to contain a pile of labels, means for moving said paste-holder against one of said pile of labels, for temporarily attaching it thereto, means for withdrawing said paste-holder so that its legs or branches will be at opposite sides of the moving bottle and the label carried thereby be directly in the path of the moving bottle so that such bottle forces it from the paste-holder as said bottle moves between the branches or legs thereof, substantially as specified.

6. The combination with a carrier adapted to receive and hold a bottle, means for moving said carrier, two oppositely-located supports provided with slots, means for holding a supply of labels near the upper ends of said supports, and a paste-holder having legs or extensions through which a bottle is adapted to pass and secured between the supports by pins projecting into said slots, of a rod slotted at its upper end, into which one of the guiding-pins of the paste-holder is adapted to enter, means for moving said rod to carry the paste-holder up and down between said supports, means for causing a label to adhere to said paste-holder and be there held, and means for causing the actuating-rod connected with the paste-holder to continue to move downward without being disengaged from the paste-holder after said paste-holder has reached its lowermost position, substantially as specified.

7. The combination with a movable carrier adapted to receive and hold a bottle, and means for moving the carrier, of a support adapted to contain a supply of labels, a paste-holder provided with legs adapted to embrace a bottle and provided on its face with means for the escape of paste from its interior, whereby upon being pressed against a label such label will be caused to adhere thereto, and means for reciprocating said paste-holder to bring said label in the path of the bottle, substantially as specified.

8. In a labeling-machine, the combination with an endless carrier, and means for moving the same, of devices attached to said carrier for securing thereto a series of bottles with their neck ends projected, a pair of standards inclined at their upper ends in the direction of travel of the carrier, means for holding a supply of labels near the upper ends of said standards, a reciprocating bifurcated paste-holder located between said standards, means for reciprocating said paste-holder and directing it against the supply of labels at the inclined upper ends of the standards and

causing a label to be attached thereto and thereafter presented across the path of travel of the bottles, and means for temporarily stopping said paste-holder while a bottle passes therethrough, substantially as specified.

9. In a labeling-machine, the combination with an endless carrier, and means for moving the same, of devices attached to said carrier for securing thereto a series of bottles with their neck ends projected, a pair of standards, means for holding a supply of labels near the upper ends of said standards, a paste-applying device having legs or extensions through which a bottle is adapted to pass, said paste-applying device being movable between said standards, a rod connected with said paste-applying device, means for moving said rod to move the paste-applying device up and down between said standards, means for causing a label to adhere to said paste-applying device, and means for causing said rod to continue to move downward without being disengaged from the paste-applying device after said paste-applying device has reached its lowermost position, substantially as specified.

10. In a labeling-machine, the combination with a carrier for the objects to be labeled and a support therefor, of a pair of standards mounted upon the support, a label-holding device carried by the standards, a reciprocating paste-holder operating between said standards and adapted to engage and feed the labels from the label-holding device to the path of the object to be labeled, means for operating said paste-holder, and means carried by the operating means for the paste-holder for operating the label-holding device to present labels to the paste-holder to be engaged thereby.

11. In a labeling-machine, the combination with a carrier for the objects to be labeled and a support therefor, of a pair of standards mounted upon the support, a label-holding device carried by the standards, a reciprocating paste-holder operating between said standards and adapted to engage and feed the labels from the label-holding device to the path of the object to be labeled, means for operating said paste-holder, means carried by the operating means for the paste-holder for operating the label-holding device to present labels to the paste-holder to be engaged thereby, a pair of vertical rollers mounted at the front of said standards, and a pair of brushes mounted at the front of the said standards above said rollers.

12. In a labeling-machine, the combination with a carrier for the objects to be labeled and a support therefor, of a pair of standards mounted upon the said support and each provided with guide-slots, a label-holding device carried by the standards, a reciprocating paste-holder operated between said standards and adapted to engage and feed the labels from the label-holding device to the path of the object to be labeled, guide-pins carried by the paste-holder and operating in the slots of the standards, and means for suitably operating said paste-holder and label-holding device.

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