Oct. 2, 1923. 1,469,599

J. E. JOHNSON ET AL

NECK WIPING DEVICE

Filed Dec. 8, 1919. 3 Sheets-Sheet 1

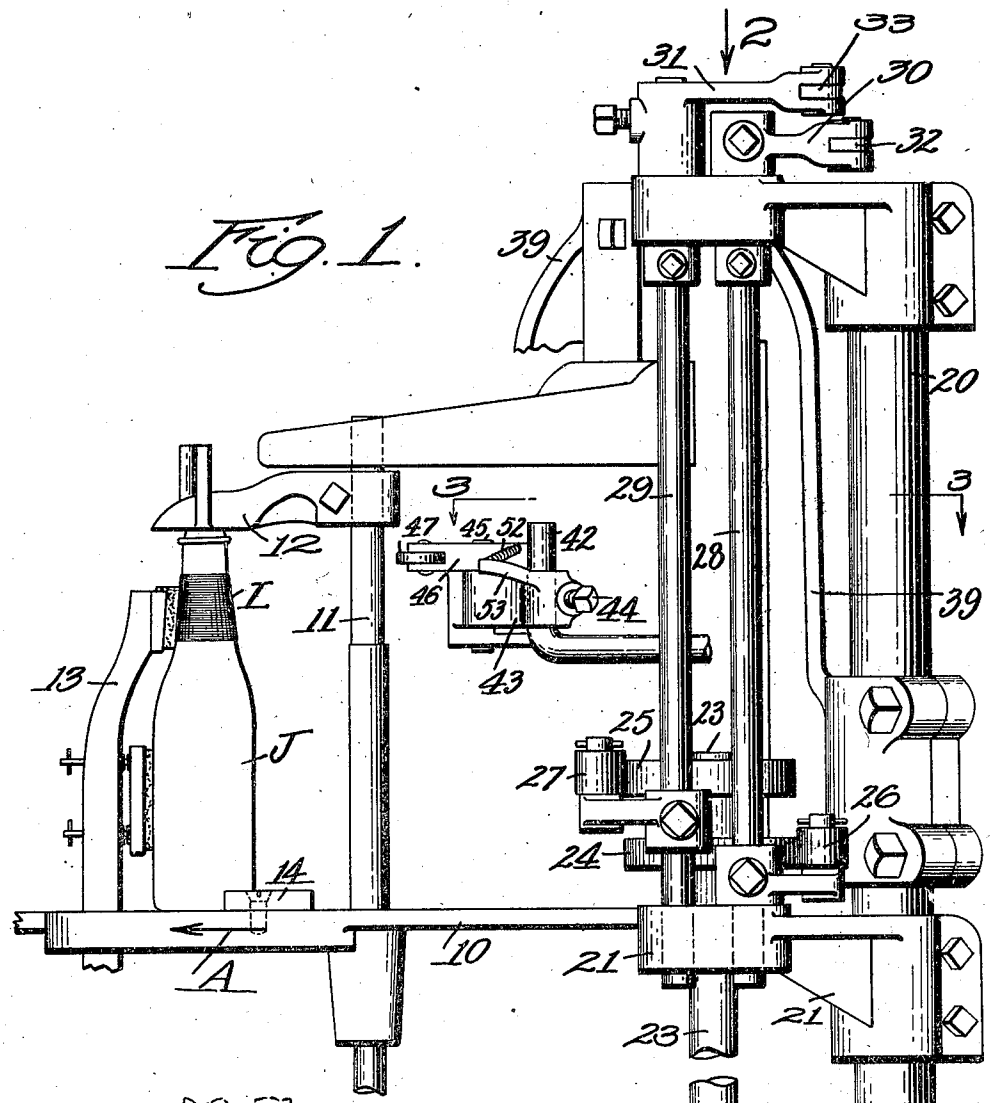


Fig. 1.

Fig. 5.

Witness
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Filed Dec. 8, 1919 3 Sheets-Sheet 2

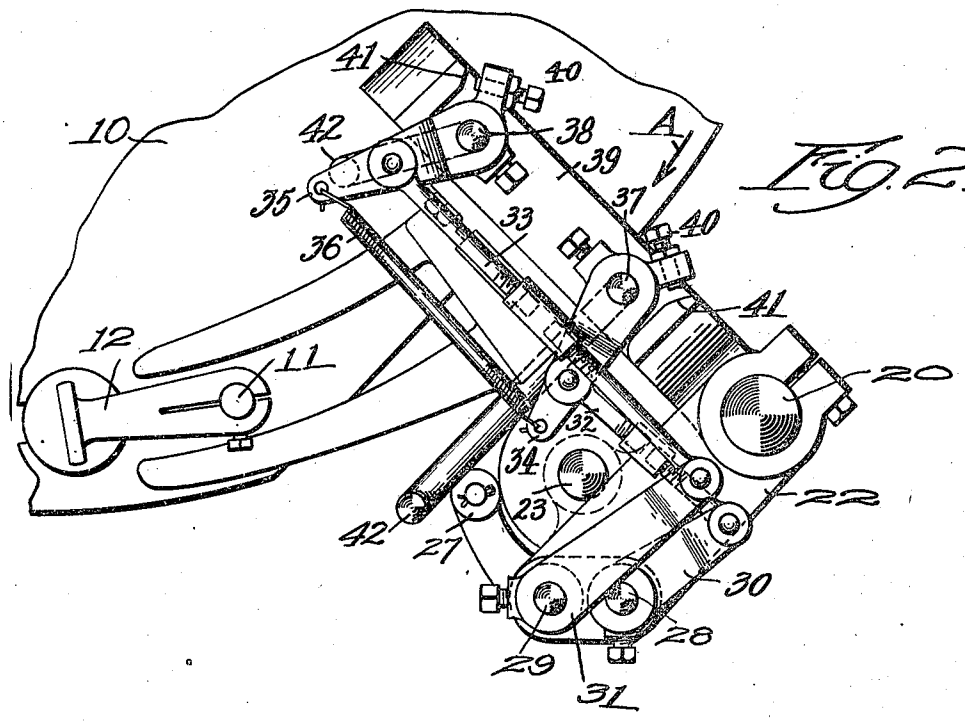


Fig. 2.

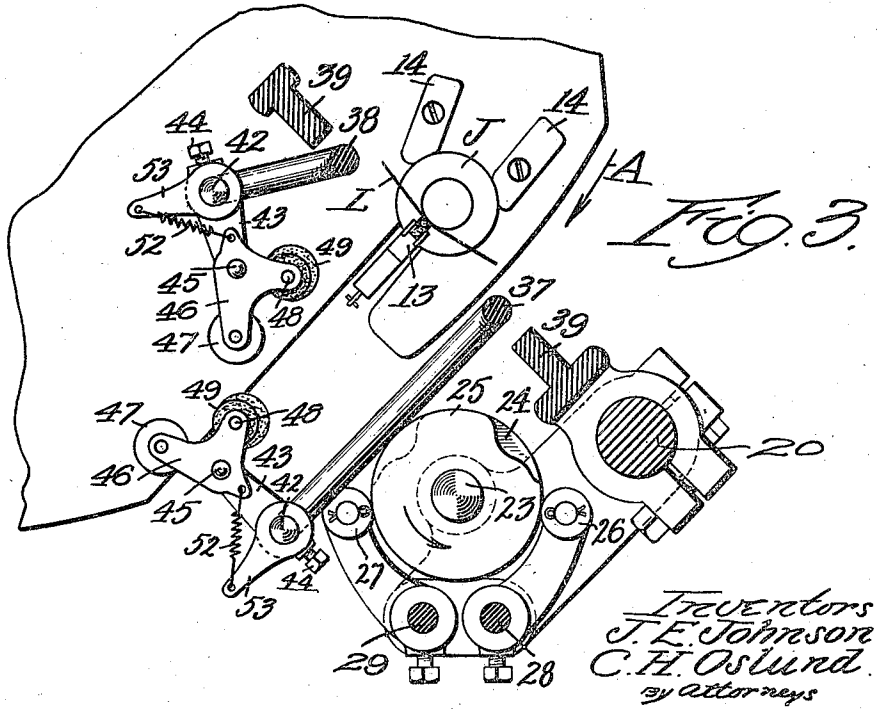


Fig. 3.

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Filed Dec. 8, 1919 3 Sheets-Sheet 3

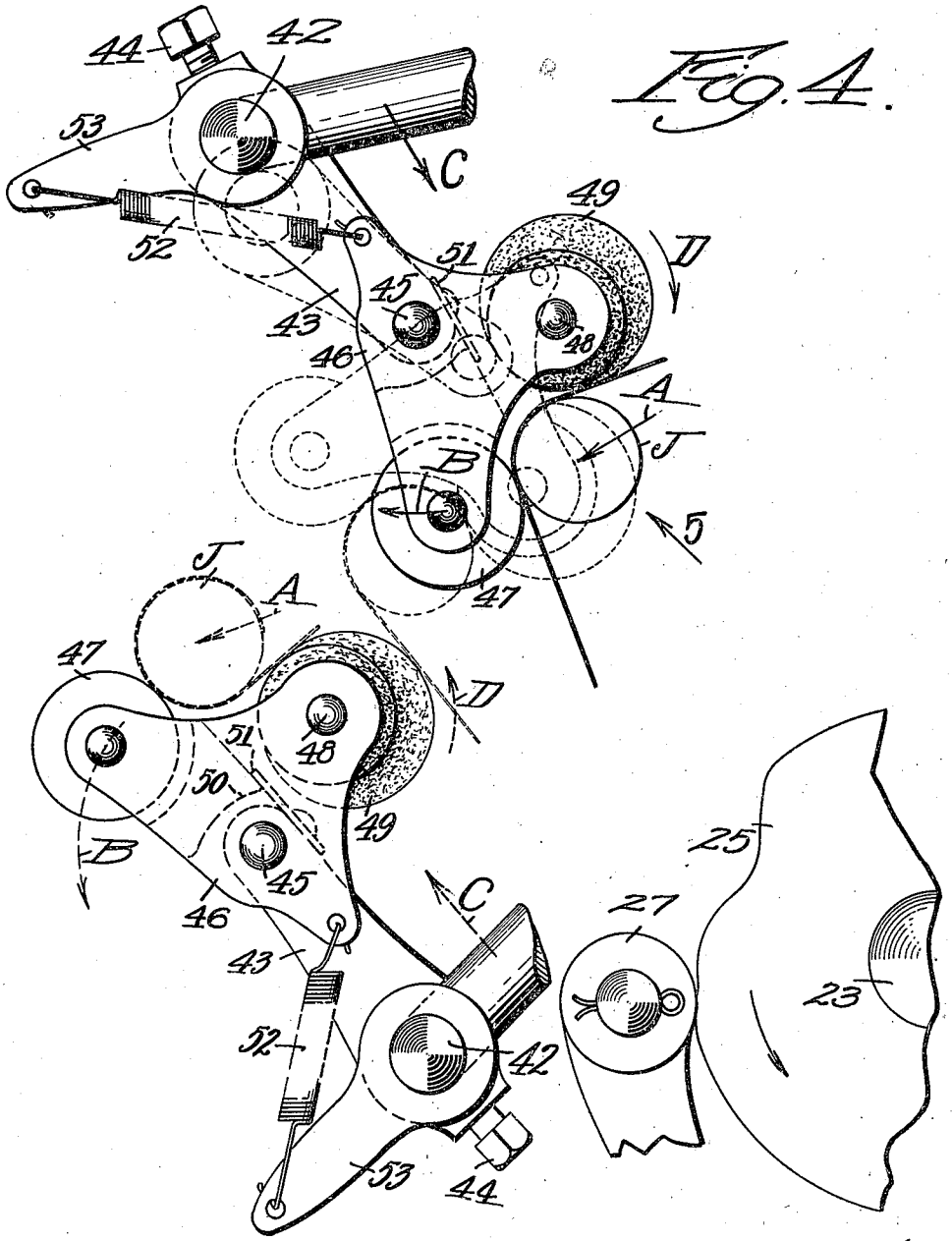


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN EMANUEL JOHNSON AND CHARLES H. OSLUND, OF WORCESTER, MASSACHUSETTS, ASSIGNORS TO THE O & J MACHINE COMPANY, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

NECK-WIPING DEVICE.

Application filed December 8, 1919. Serial No. 343,411.

To all whom it may concern:

Be it known that we, JOHN EMANUEL JOHNSON and CHARLES H. OSLUND, citizens of the United States, both residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Neck-Wiping Device, of which the following is a specification.

This invention relates to a wiping device, capable of general use, but described herein as a neck wiping device because that is the most convenient place to use it, and the one in which it is most likely to be employed, but it is to be understood of course that it is not limited to the wiping of necks, its particular object being to effectively wipe down the two ends of a label which extends all the way around a bottle or other device and overlaps. More specifically, this invention is designed to provide a moving wiper of such a nature that relative motion between its support and the support for the article to be labeled will cause the wiper to be moved relatively to the article as they pass each other in such a path as to swing the wiper around the article and paste down the end of the label on the rear side of the article; to provide for giving the wiper a sideways motion in addition to its swinging motion to effect the path of movement of the wiper in such a way as to add to the effectiveness of the operation; to duplicate the parts so that first one wiping mechanism will wipe down one end of the label, and then the other will come into action to wipe down the other end; to provide an improved wiper which will have only a rolling action on the label and no rubbing action and therefore no tendency to displace the label; and to provide improvements in the relative arrangement of the parts and mechanism for operating them so as to secure the necessary motions in a simple and effective manner. The invention also involves certain details of construction and combinations of parts as will appear.

Reference is to be had to the accompanying drawings, in which—

Fig. 1 is a side elevation of a rotary table bottle labelling machine showing a preferred form of this invention applied thereto for application of neck labels;

Fig. 2 is a plan of a portion thereof;

Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1 constituting a plan of the lower part of the mechanism;

Fig. 4 is a similar view, on enlarged scale, showing the wiping device in action with the parts in a different position; and

Fig. 5 is an elevation of one of the wiping devices showing how it wipes down the end of a label on a tapering bottle neck.

Although this invention is capable of use on other types of labeling machines, it is especially adapted for the rotary table type and we have shown it as applied thereto. For this purpose a circular rotary table 10 is shown carrying posts 11 and provided with clamping devices 12 for engaging the tops of the bottles J or cans and holding them firmly down on the table in accordance with our previous patents. We have also shown a label holder 13, the operation of which is not a part of this invention, for holding the center of the label on the neck of the bottle and showing the bottom of the bottle as coming up against blocks or screw heads 14 to help fix it in stationary position on the table.

Mounted in stationary position at the side of the table is a standard 20. This supports two brackets 21 and 22, one at the top and one at the bottom. The bracket 21 carries a vertical shaft 23 driven from mechanism below by any desired means, as for example, a bevel gear 23^a. This shaft carries two cams 24 and 25. These cams are arranged to operate two rollers 26 and 27 respectively, these rollers being mounted on arms projecting from two shafts 28 and 29. These two shafts are arranged vertically and supported on the brackets 21 and 22.

As the shaft 23 rotates, it is obvious that these two shafts 28 and 29 will oscillate and that their oscillations will be similar and opposite but at different points in the cycle of rotation on account of the shape and relative location of the two cams indicated in Fig. 3. At the top these two shafts are provided with arms 30 and 31 respectively, which operate adjustable turn-buckle links 32 and 33 which in turn swing a pair of arms 34 and 35. These are connected by a spring 36 so that this spring holds both of the rollers 26 and 27 in contact with their cams.

These two arms 34 and 35 are mounted on two shafts 37 and 38 respectively, arranged vertically and journalled in an overhanging arch 39 supported by the standard 20. These two shafts are provided with adjustable stops 40 adapted to engage stop surfaces 41 and limit their motion in one direction. The arms 34 and 35 are adjustably fixed on their shafts 37 and 38 by set screws to permit of adjustments to accommodate the labeling of different kinds of articles.

These two shafts 37 and 38 extend downwardly and are provided with inverted hooks formed by horizontal projections extending from the bottoms of the shafts, each having an upwardly extending vertical end 42. These two ends 42 constitute studs on which, in each case, is fixed an arm 43 adjustably applied thereto by means of a set screw 44.

On this arm is pivoted a stud 45 which carries pivotally a wiper supporting plate 46 arranged horizontally. This is provided with a wiper 49 in the form of a frusto-conical roller freely rotatable on a stud 48 which is shown as arranged in inclined position and with a non-wiping roller 47 which operates the plate and wiping roller. The inclined arrangement of this stud 48 is provided to permit of the wiping of a tapered bottle neck and it will be noted that its larger flat end is adjacent to the larger end of the tapering bottle. This is an important point. Heretofore, when wiping a tapered neck with a roller, it has, so far as we are aware, been thought necessary to have the taper opposite. We find that this produces a different relative surface travel at the top and bottom which sometimes displaces the label. We overcome this by inclining the wiping roller and making it of practically the same circumference at all points as the neck at the point of contact therewith. Thus a true rolling action is secured without any rubbing or likelihood of displacement. If a cylindrical surface has to be wiped the stud will be arranged vertically or parallel with the axis of the bottle.

This wiper 49 is shown as smaller in diameter at the top than at the bottom, but with one side, namely its wiping side, almost vertical. This gives a larger slant to its non-active side. In other words, it is a cone frustum slanted by inclining its axis. Both these rollers 47 and 49 are freely rotatable on their respective axes. The swinging plate 46 is also provided with a stop plate 50 while the arm 43 has a stop member 51 that engages it in the position shown in Fig. 4, and limits its motion in one direction. The swinging plate 46 is yieldingly forced up against the stop by the spring 52 connected with an arm 53 fixed on the top of a shaft 42.

It will be understood, of course, that while we have above described only one of these mechanisms the other one is substantially the same but arranged left-handedly with respect thereto, and that the distance between the shafts 37 and 42 is greater than that between the shafts 38 and 42 as shown.

It is to be understood that in the particular form of the invention shown the table 10 rotates in the direction of the arrow A and, by means now well-known in this art, the bottle J or other article to be labeled is clamped on the table, a label L is applied which the gripper 13 grips preferably at the center as shown, and if desired it can be preliminarily wiped down in the usual way by passing through a pair of stationary wipers. We have not shown them to avoid confusion.

Now the continued rotation of the table brings the bottle along in the arc of a circle and it passes by the first wiping roller 49 without touching it and comes into contact with the first non-wiping roller 47 as shown in full lines at the top of Fig. 4. The first effect of this is to slowly swing the plate 46 in opposition to its spring 52 in the direction of the arrow B in Fig. 4. This brings the wiping roller 49 outwards against the bottle label and it is to be observed that its slanting surface is the part that engages the slanting surface of the bottle neck. The continued motion of the bottle, which it must be undertsood is a positive one, swings the roller 47 clear around as shown in dotted lines at the top of Fig. 4, bringing the wiping roller clear around to the back of the bottle and pasting the label down clear to its end. Then the bottle passes out of the way of the roller 47 and the plate swings back to the full line position.

It is to be observed that prior to this simple motion that has been described, the whole wiping device has had another motion in the direction of the arrow C in Fig. 4. caused by the cam 25 and the shaft 29. This cam is carefully timed to swing these elements and consequently swing the shaft 38 on its center and move the upwardly extending shaft 42 with the parts supported by it inwardly in the direction of the arrow C as stated. The pivot 45 moves to the dotted line position. This action is needed to move the wipers back so that they will not engage the posts 11. Without this motion, the plate 46 would still swing enough to keep the roller 49 in contact with the bottle as it swings around behind it, but it would conflict with the post 11. When the machine runs empty the wiping device does not operate except to avoid the posts.

It is to be observed at this time that the wiping roll 49 turns on its own axis in the direction of the arrow D so that it has

merely a rolling action on the label, thus eliminating all tendency to draw or misplace the label.

As the bottle leaves the dotted line position shown in Fig. 4 at the top and passes the upper roller 47 the spring 52 will swing the upper plate 46 back into the full line position ready to receive the next bottle. The bottle that has been under consideration then passes on to the dotted line position shown at the bottom of Fig. 4 and engages the lower operating roller 47 as indicated therein. Then the action above described occurs on the other side of the label, including the motion of the shaft 42. The three arrows, B., C. and D are shown thereon in dotted lines to indicate the action of this wiper.

The first end of the label being pasted down by the first wiper 49, the second wiper overlaps the other end, if the label is long enough, and completes the operation of wiping the label around the neck of the bottle.

It will be seen therefore that this constitutes a simple and effective means for securing the complete encircling of the bottle or the like even when of tapering form by a label long enough to surround it, and that the complications heretofore thought necessary in order to produce that result are eliminated and the action secured in a certain and positively accurate manner with comparatively simple mechanism. The wiper is operated largely by the motion of the bottle, also, which eliminates the necessity of using special means for securing the principal portion of the wiping action.

Although we have illustrated and described only a single form of the invention and shown it as applied to a particular type of labeling machine and to the application of a label to a particular kind of surface we are aware of the fact that modifications can be made therein by any person skilled in the art and that the principle of the invention can be employed with widely varying types of machines and on widely varying surfaces without departing from the scope of the invention as expressed in the claims.

Therefore we do not wish to be limited in these respects but what we do claim is:—

1. In a labeling machine, the combination of a pivotally supported member, and two rollers on said member, one of them being mounted to turn on its own axis and having a label wiping surface, with movable means for moving an article to be labelled into position to engage the other roller after passing the wiping roller out of contact therewith, and thereby swing the wiping roller into contact with the article.

2. In a labeling machine, the combination of a pair of standards, a plate pivoted to each standard, and two rollers mounted on each plate, one roller of each pair constituting an operating roller and the other a wiping roller, said four rollers being so positioned relative to each other that when an article to be labeled is moved into position to engage first one operating roller and then the other, this will cause one wiping roller to swing with its plate and wipe down one end of a label on one side of said article and then the other wiping roller to wipe down the other end of the label on the other side.

3. In a labeling machine, the combination of a standard, a member pivotally connected therewith and supported thereby, two rollers on said member, one of them having a label wiping surface, said rollers being located in such position that when an article to be labeled is moved along a predetermined path it will engage the non-wiping roller and swing the wiping roller about the pivot into contact with said article, and a spring for bodily moving said member and wiping roller in another direction while it is being swung on the pivot by said article.

4. In a labeling machine, the combination of a standard, a member pivotally connected therewith and supported thereby, two rollers on said member, one of them having a label wiping surface, relatively movable means for supporting an article to be labeled in position to engage the non-wiping roller for the purpose of swinging the wiping roller about the pivot into contact with said article, and a rotary cam for moving said member and wiping roller in another direction while it is swinging on its axis.

5. In a labeling machine, the combination of a pair of pivoted plates, a wiper and an operating element mounted on each plate, said operating elements being located in position to be engaged one after the other and operated by an article to be labeled to cause first one wiper to wipe down one end of a label on one side and then the other end of the label on the other side, a pair of cams rotatable on the same axis, two separate shafts, means for controlling each of said shafts from one of said cams, and means connected with said shafts for operating the two pivoted plates to move them toward the article to be labeled.

6. In a labeling machine, the combination of a pair of pivoted plates, an operating roller and a frusto-conical wiper on each plate, with relatively movable means for supporting an article to be labeled in position to engage first one operating roller and then the other to cause one wiper to wipe down one end of a label on one side and then the other wiper to wipe down the other end of the label on the other side, a pair of cams, two separate shafts, means for controlling each of said shafts from one of said cams, and means connected with said shafts for operating the two pivoted plates.

7. In a labeling machine, the combination

of means for supporting an article to be labeled, with a pivoted supporting plate, a stop, a spring normally tending to swing the plate back against the stop, an operating roller carried by said plate in position to be engaged by the article to be labeled as it moves whereby the plate will be caused to swing on its axis, and a frusto-conical wiping roller mounted on said plate in position to move toward the article as it swings with the plate, said wiping roller being located with its larger base on the end thereof toward the base of the article to be labeled and having one side only slightly inclined and being mounted on an inclined axis about which it is adapted to turn.

8. In a wiping device, the combination with means for supporting a bottle having a tapered neck smaller at the top than at the bottom in position to be labeled, and a frusto-conical wiping roller for wiping a label thereon, said roller being larger at the bottom than at the top and being mounted on an axis inclined nearly parallel to the side of the tapering neck but further from it at the bottom than at the top.

9. A wiper for a tapering bottle neck comprising a frusto-conical roller mounted to rotate freely on an inclined axis and so located that its larger base is adjacent to the larger end of said neck.

In testimony whereof we have hereunto affixed our signatures.

JOHN EMANUEL JOHNSON.
CHARLES H. OSLUND.