Feb. 13, 1923.

1,445,321.

J. E. JOHNSON ET AL.

LABEL WIPING DEVICE.

FILED MAR. 22, 1919.

4 SHEETS—SHEET 1.

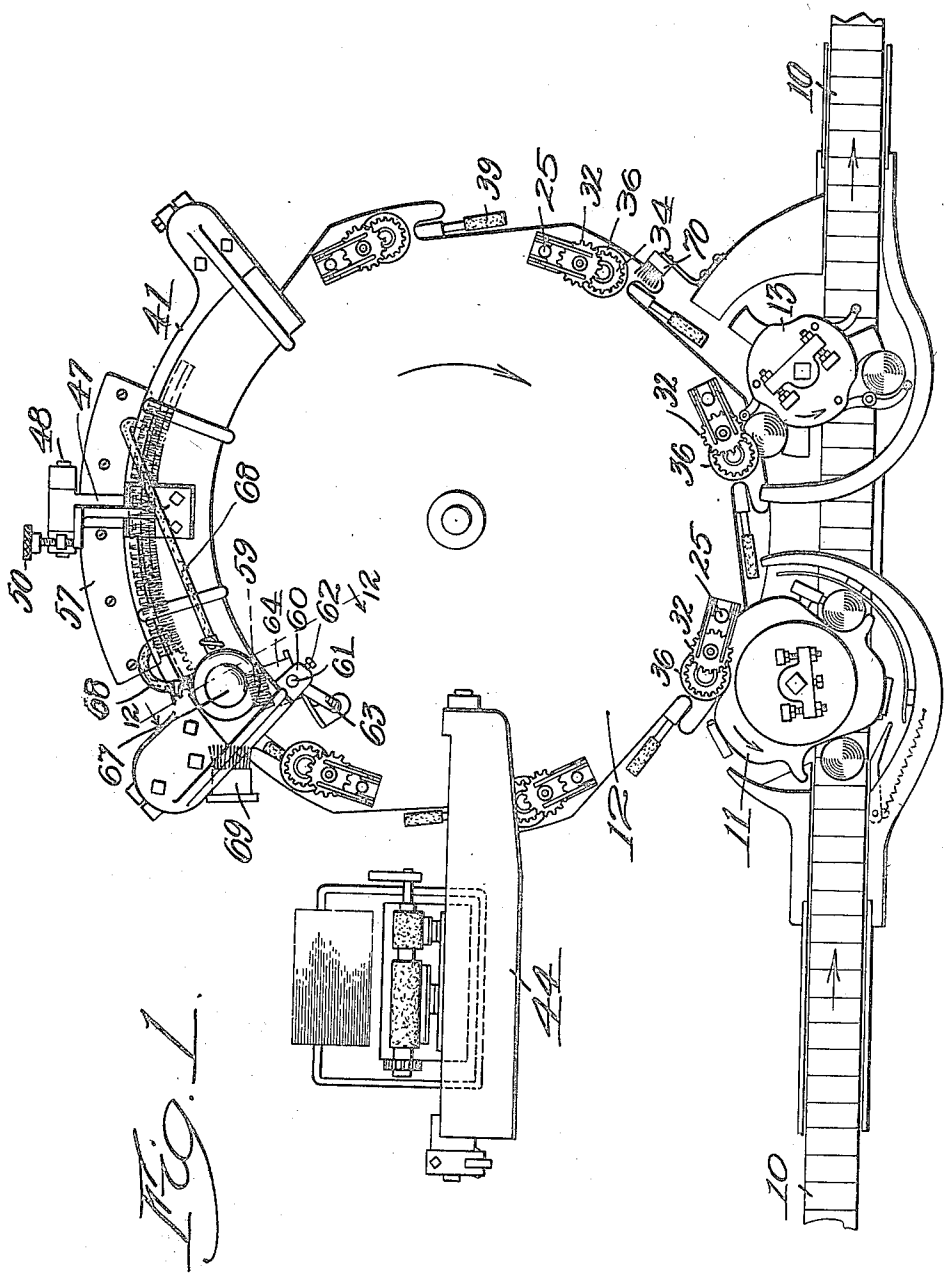

Fig. 1.

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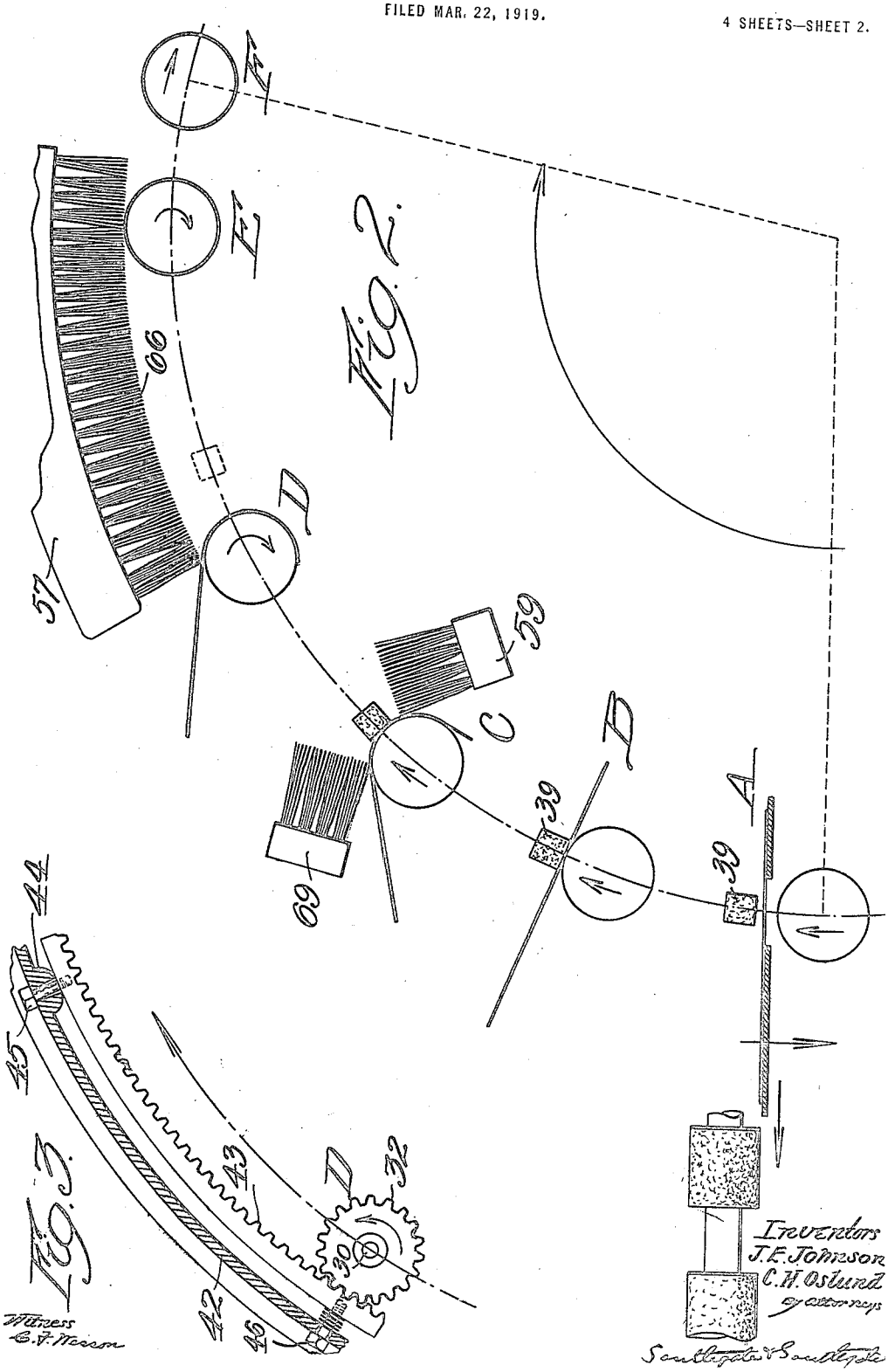
4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 5.

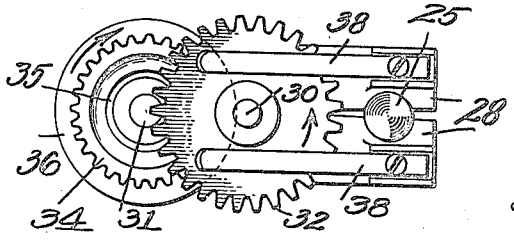
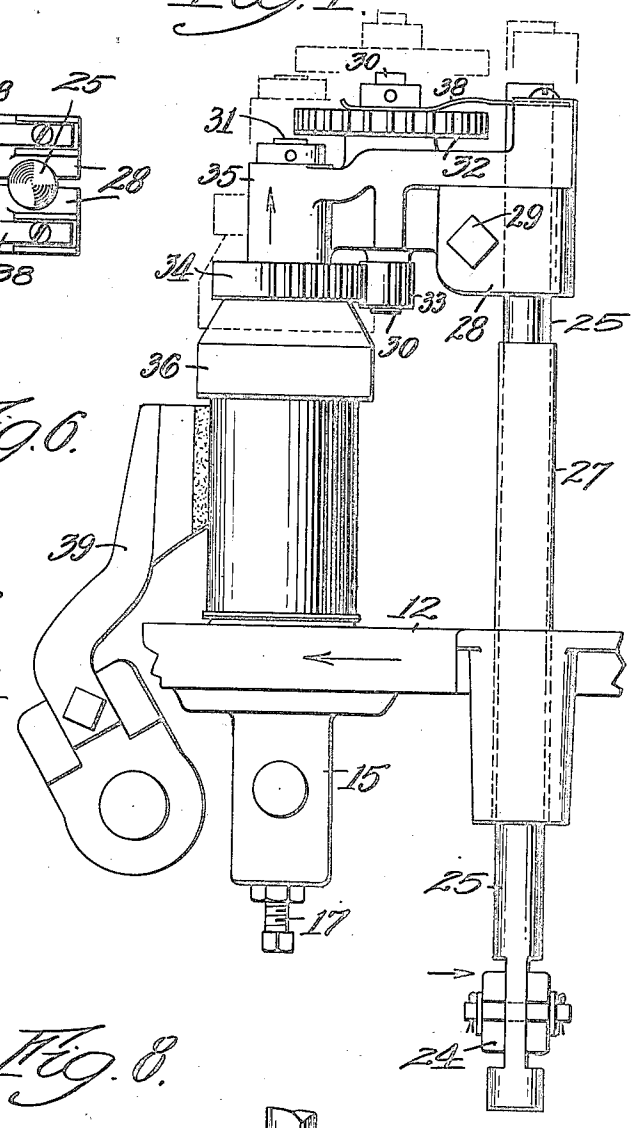


Fig. 4.



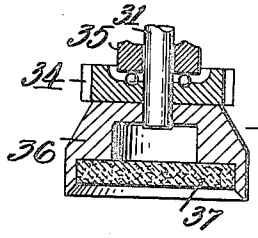


Fig. 6.

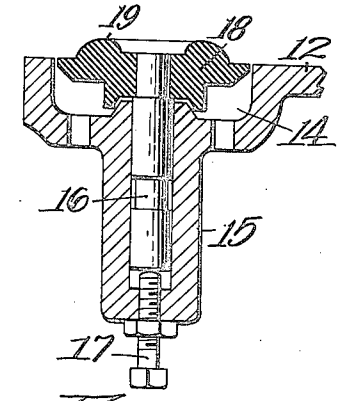
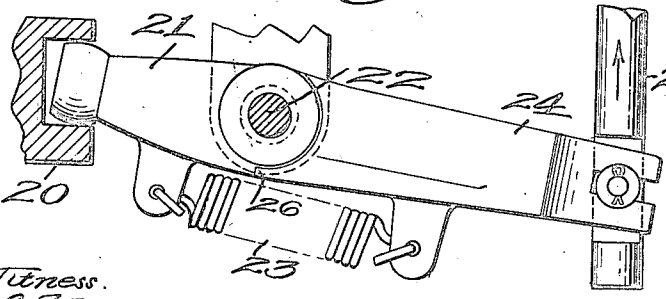


Fig. 7.

Fig. 8.



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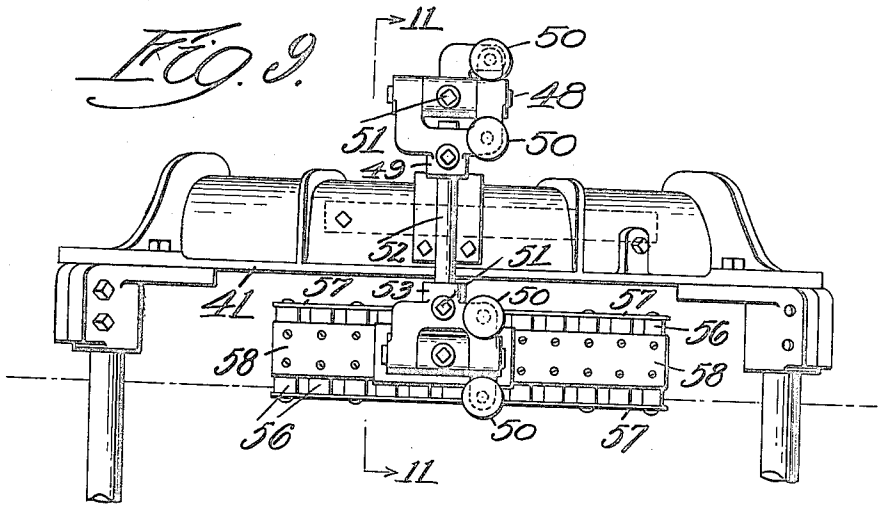
4 SHEETS—SHEET 4.

Fig. 9.



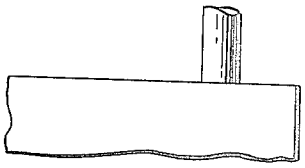


Fig. 11.

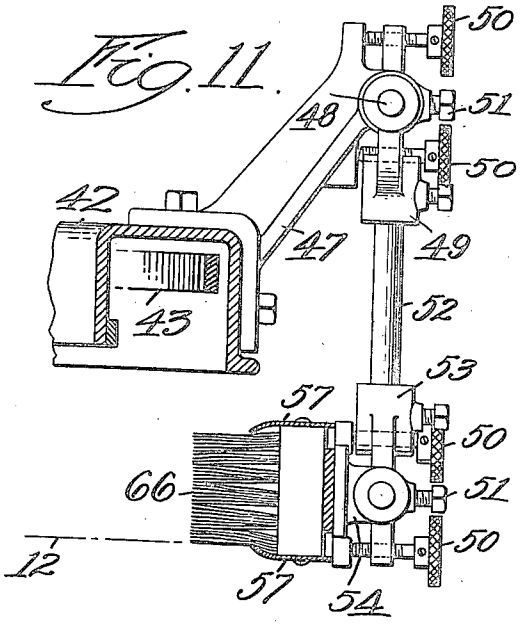


Fig. 12.

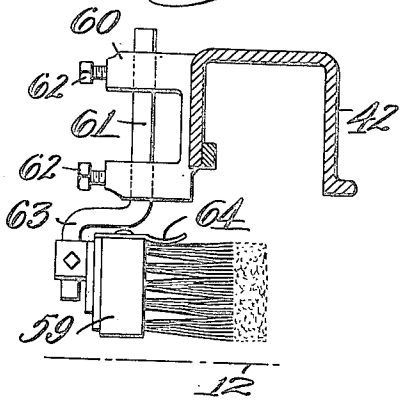
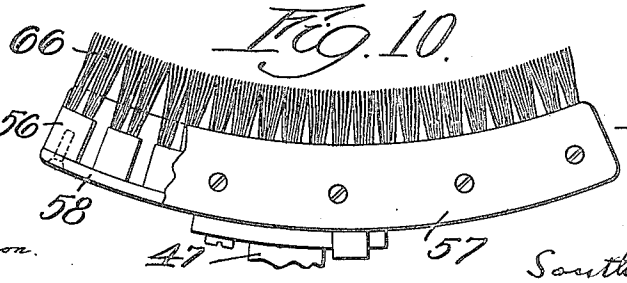


Fig. 10.



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Patented Feb. 13, 1923. 1,445,321

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.

LABEL-WIPING DEVICE.

Application filed March 22, 1919. Serial No. 284,316.

To all whom it may concern:

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

This invention relates to a machine for wiping labels around an article as for example a cylindrical can.

The principal objects of the invention are to provide a labeling device of the type in which the articles to be labeled are carried along or around on a traveling conveyor with simple and effective means for winding a label all the way around the can or other article to be labeled; also to provide this means in the form of brushes or the like fixed in stationary position and to spread the label around the article by the movements of the article itself. The invention also involves improvements in the mechanism for holding, turning and releasing the can or the like, and in the means for supporting and adjusting the wiping brushes and in the brushes themselves.

Reference is to be had to the accompanying drawings in which

Fig. 1 is a plan of a labeling machine of the rotary type constructed in accordance with this invention;

Fig. 2 is a diagrammatic plan showing the application of a label to a can on this machine;

Fig. 3 is a plan of the gearing for rotating the can;

Fig. 4 is a side elevation of the can holding, rotating and releasing means and connected parts;

Fig. 5 is a plan of the same;

Fig. 6 is a central sectional view of the can-holding head;

Fig. 7 is a similar view of the can supporting base;

Fig. 8 is a side view of the means for operating the can holding and releasing device shown in Fig. 4;

Fig. 9 is a rear or outside view of the main wiping brush and its supporting mechanism;

Fig. 10 is a plan of the brush with parts broken away to show its construction;

Fig. 11 is a sectional view on the line 11—11 of Fig. 9 showing the rack and its casing, and also parts of the brush supporting elements in section, and

Fig. 12 is a sectional view on the line 12—12 of Fig. 1 showing the first brush in elevation and the end of the casing in section.

This invention is shown as applied to a type of labeling machine illustrated in several of our prior patents.

In this class of machines the cans or other articles are brought to the machine on an endless conveyor 10 and delivered from that by a turret 11 to a rotating table 12 mounted to turn on a central vertical axis and having a horizontal supporting surface for the cans. They go around on the table in the general manner set forth in our other patents and are delivered from it by another turret 13 to the same conveyor 10 or another as may be desired. The construction and operation of the conveyor and turrets do not constitute a part of this invention. This invention is not limited to the use of a rotary table.

The rotary table 12 in this instance is shown as provided with eight stations at which the cans to be labeled are applied to the table and supported during its operation. In the form shown herein the table is provided with a depression at 14 for each of these stations. This has a central cylinder 15 depending below it in the bore of which is supported a rotatable shaft 16 having enlargements which fit the bore and adapted to be adjusted vertically by a screw 17 or the like. This shaft carries on it a freely rotatable plate 18 which is provided with a concentric circular convex projection 19 on which the can to be labeled is deposited and by which it is supported in a freely rotatable manner.

Under the table is located a stationary cam 20 operating eight levers 21 mounted on shafts 22 supported under the table. Springs 23 are connected from the levers 21 to arms 24 which reciprocate a corresponding number of vertical rods 25.

The arm 24 is provided with a stop 26 coming against the end surface of the arm or lever 21 so that the downward movement of the lever 21 about the shaft 22 will positively force the rod 25 upwardly, but it will come down yieldingly in accordance

with the operation of the spring 23 as the cam permits it to move down.

The rod 25 passes through a guide tube 27 fixed on the table, one of course for each of the plates 18, and at the top it is provided with a split head 28 secured to it by clamping bolt 29 or the like. This head supports two shafts 30 and 31. The shaft 30 carries an operating gear 32 and a pinion 33. When this gear 32 is operated by means to be described hereinafter it rotates the pinion and consequently the gear 34 mounted on the shaft 31. This gear is provided with ball bearings between its surface and that of a hub 35 carried by the split head 28 and is fixed with respect to the can rotating head 36 below, which is provided with a depression in its lower surface in which is a rubber disk 37 for engaging the top of the can. This, therefore, causes the can to rotate when held between the plate and the disk 37 provided the gear 32 is rotated.

A pair of springs 38 on the top of the split head project over the gear 32 and apply a yielding friction to prevent its spinning or getting out of place. This tends to keep the gear in position to properly mesh with the rack every time it comes around. The dotted lines in Fig. 4 indicate the position to which these parts rise when the cam 20 forces them up.

When the can is deposited on one of these plates 18 as shown at the bottom of Fig. 1 the cam 20 will act to allow the springs 23 and 38 to yieldingly force the rod 25 and the head 28 down on the can as shown in Fig. 4 and hold the can firmly in position. At the same time the label holder 39 comes up through a slot in the table and engages the label as we have shown in our prior patents.

The parts above described constitute some minor improvements over our prior patents as for example that on a labeling machine, No. 1,272,670, patented July 16, 1918, but the main feature of this invention lies in the wiping of the label around the can. This is accomplished by the provision of a stationary frame 41 supported adjacent the table and provided with a casing 42 through which the cans pass in their travel around with the table. Inside this casing there is a rack 43 concentric with the path of the cans and located in position to engage the gear 32 as the can comes into the casing and turn the gear and therefore the can during the passage of the same through the casing. The can turns on its own axis as indicated in Fig. 2.

For the purpose of making use of this movement to apply the label the latter, preferably moistened by immersion or otherwise, is applied across the path of the moving can by means of a label picking device 44 in the position indicated at A in Fig. 2. It will be noted that the label is not centrally located with respect to the can. The can then comes along in the direction of the arrow. The label holder 39 swings up into position just after the can has engaged the label and then the can moves along through position B to position C. While still in that position the label comes into contact with two stationary brushes 59 and 69 which, by the continued motion of the can around the table, wipe down the short end and partially wipe back the long end of the label. When the can gets to position D the gear 32 comes into contact with the rack 43 and the can begins to rotate on its own axis as indicated by the curved arrow. Then it comes into contact with a brush 66 which is curved in its general form. The label holder 39 swings down out of the way, and the can passes to the position E where the label is entirely wrapped around it, and then to the position F where it leaves the wiping devices entirely. Then it proceeds in the usual way until the rod 25 is raised and the can taken off the table by the turret 13. In order to wipe back the overlapping end of the label if it should be loosened, a stationary brush 70 is located near the point of discharge.

The rack 43 is shown as movably supported to prevent breaking it if a gear approaches in such a position as not to mesh with it. For this purpose it has a rolling pivotal motion about the convex surface of a projection 44 on the support. A pair of bolts 45 passing through this projection with a clearance are fixed to one end of the rack. The other end of the rack has a screw 46 fixed to it, the head of which is located behind a flange on the support and acts as a stop. A spring forces it out yieldingly so that if the gear does not strike it in the right position it can move back against the spring and then come forward immediately into operative position.

The brush 66 is supported from the stand 41 or from the casing 42 by a bracket 47 having a horizontal shaft or stud 48 on which swings a frame 49. This frame can be adjusted to any desired angle by a pair of adjusting screws 50 as will be obvious and it is fixed in adjusted position by a set screw 51. The frame 49 carries a rod 52 which carries a second frame 53 having screws 50 and 51 for adjusting and holding a brush back 54 in the same manner as above, the adjustment being effective about a shaft or stud 55 carried by the frame 53. This brush back 54 carries an arc-shaped plate 58 on which is supported a plurality of blocks 56, each having bristles constituting the curved brush 66. These blocks are individually held by screws so that they can be removed and replaced independently of each other. A pair of sheet metal walls 57 above and below con-

stitute the casing for the brush and they are bent inwardly at their edges to hold the bristles together and prevent their separating widely.

The stationary brush 59 which has been mentioned is also supported on the casing from a bracket 60 which has passages for a rod 61 which is held in position by set screws 62. This rod is provided with an offset 63 so that it can be turned as may be desired to adjust the brush properly to perform its above described function. The brush is mounted on this offset and is provided with a clip at 64 for preventing the upper bristles from being permanently bent upwardly.

In the above description we have indicated the operation of the device referring to Fig. 2 and it will not be necessary to repeat that description, but it is sufficient to say that according to this device the labels are applied to the cans or the like in a non-central position and the short ends brushed down by a stationary brush. Then each can is given a rotation on its own axis which causes the long end of the label to be brushed down as the can passes along the surface of the curved brush 66.

The label wiping operation therefore is performed solely by stationary wipers on account of the motion of the can itself, and the object is to ensure the wiping of the label entirely around the article to be labeled, but it does not necessarily have to be a can or even an article of cylindrical form. We can apply this operation to labels which are in the so-called dry state, that is, wet only by the paste which is supplied to them or to labels which have been wet before they are applied to the can to facilitate the wiping action. This causes them to shrink slightly when they dry and thus smooth them out on the surface to which they are applied. They can be wet additionally by moistening the brushes if desired. For this purpose a water receptacle 67 is located on the casing. It is shown as having two valve controlled drip pipes 68 for moistening the curved brush.

Although we have illustrated and described only a single form of the invention we are aware of the fact that many modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims.

Therefore, we do not wish to be limited to all the details of construction herein shown and described or to the particular type of labeling machine to which we have shown the invention as being applied, but what we do claim is:—

1. In a labeling machine, the combination of a horizontal traveling support for the articles to be labeled having a horizontal rotary plate mounted thereon capable of rotating on its own vertical axis for supporting an article to be labeled, means bodily movable with said support for clamping the article vertically down on said plate, said means itself being capable of turning on a vertical axis to turn the article and plate while said support is traveling, and means for applying a label to a vertical side of an article on said plate while it is in the act of being turned.

2. In a labeling machine, the combination with a carrier for the article to be labeled, movable in a horizontal plane, of a horizontal rotary plate mounted thereon capable of rotating on its own vertical axis for concentrically supporting an article to be labeled, means for turning the plate on its own vertical axis while it travels horizontally with said carrier, and means for wiping a label entirely around the article.

3. In a labeling machine, the combination with a support for the article to be labeled, of means for supplying a label in front of the article and support with the major portion of the label on one side thereof, means for engaging the label and clamping it on the front surface of said article at a point at one side of the center of the label, means on opposite sides of the support for wiping down the two ends of the label, and means on one side of the support for thereafter completing the wiping down of the long end of the label.

4. In a labeling machine, the combination with a rotatable carrier for the article to be labeled, of means for supplying a label in front of the article with the major portion of the label on one side thereof, means for engaging the label and clamping it on the article at a point at one side of the center of the label, stationary means for engaging the short end of the label and applying it to the article, and stationary means for thereafter wiping down the long end of the label.

5. In a labeling machine, the combination with a rotatable carrier for the article to be labeled, of means for supplying a label in front of the article with the major portion of the label on one side thereof, means for engaging the label and clamping it on the article at a point at one side of the center of the label, a fixed brush on one side of the article for engaging the short end of the label and wiping it down as the article passes it, a fixed brush at another point in the path of the article for engaging the long end of the label and wiping it down on the article, and means for moving the article relatively to the carrier while the label is in engagement with the second brush to ensure the wrapping of the label entirely around the article.

6. In a labeling machine, the combina-

tion with a rotatable carrier for the article to be labeled, of means for supplying a label in front of the article, means for engaging the label and clamping it on the article, a fixed brush on one side of the article for engaging the end of the label and wiping it down as the article passes it, a fixed brush at another point in the path of the article for engaging the other end of the label and wiping it down on the article, and means for moving the article relatively to the carrier while the label is in engagement with the second brush to ensure the wrapping of the label entirely around the article.

7. In a labeling machine, the combination with a carrier for the article to be labeled, a head adapted to be brought against the article to be labeled for holding the article, means for wiping a label on the article, a vertically reciprocating rod for controlling the position of the head, a stationary cam, a shaft adjacent to the cam, two arms pivoted on said shaft and having abutments engaging each other, whereby when one of said arms is moved down the other will be raised positively, and yielding means for moving said other arm down when the first named arm is raised by the cam, the second arm being connected with said rod.

8. In a labeling machine, the combination with a carrier for the article to be labeled, of means for turning the article on its own axis as it travels with said carrier, and means for wiping a label on the article while it turns, said turning means comprising an arc-shaped rack yieldingly pivoted to one end.

9. In a labeling machine, the combination with a carrier for the article to be labeled, an arc-shaped rack located in stationary position, a gear carried by the carrier for engaging said rack, gearing connected with said gear, a head connected with the gearing and adapted to be brought down on the article to be labeled for turning the article, means for wiping a label on the article as it turns, a vertically reciprocating rod for controlling the position of the head, a stationary cam under the table, a shaft adjacent to the cam, two arms pivoted on said shaft and having abutments engaging each other, whereby when one of said arms is moved down the other will be raised positively, and yielding means for moving said other arm down when the first named arm is raised by the cam, the second arm being connected with said rod.

10. In a labeling machine, the combination with a carrier for the article to be labeled, of means for turning the article on its own axis as it travels with said carrier, a fixed support, a horizontal shaft carried thereby, a frame mounted to swing on said shaft, adjusting screws for adjusting said frame with respect to the shaft, and a brush supported by said frame for wiping a label on the article while it turns.

11. In a labeling machine, the combination with a carrier for the article to be labeled, of means for turning the article on its own axis as it travels with said carrier, an adjustably mounted brush back, a plurality of independently mounted blocks carried thereby, each having bristles projecting therefrom, said bristles being arranged with their ends in the arc of a circle for wiping a label on the article while it turns, and a casing engaging the upper and lower surfaces of the bristles and holding them together.

12. In a labeling machine, the combination with a support for the article to be labeled, of means for supplying a label in front of the article with the major portion of the label on one side thereof, means for engaging the label and clamping it on the article at a point at one side of the center of the label, means for engaging the longer part of the label and swinging it back part way around the article, and means on opposite sides of said support for wiping down the two ends of the label.

In testimony whereof we have hereunto affixed our signatures.

JOHN EMANUEL JOHNSON.
CHARLES H. OSLUND.