J. C. LARSEN.

LABELING MACHINE.

APPLICATION FILED MAY 23, 1913.

1,134,876.

Patented Apr. 6, 1915.

4 SHEETS—SHEET 1.

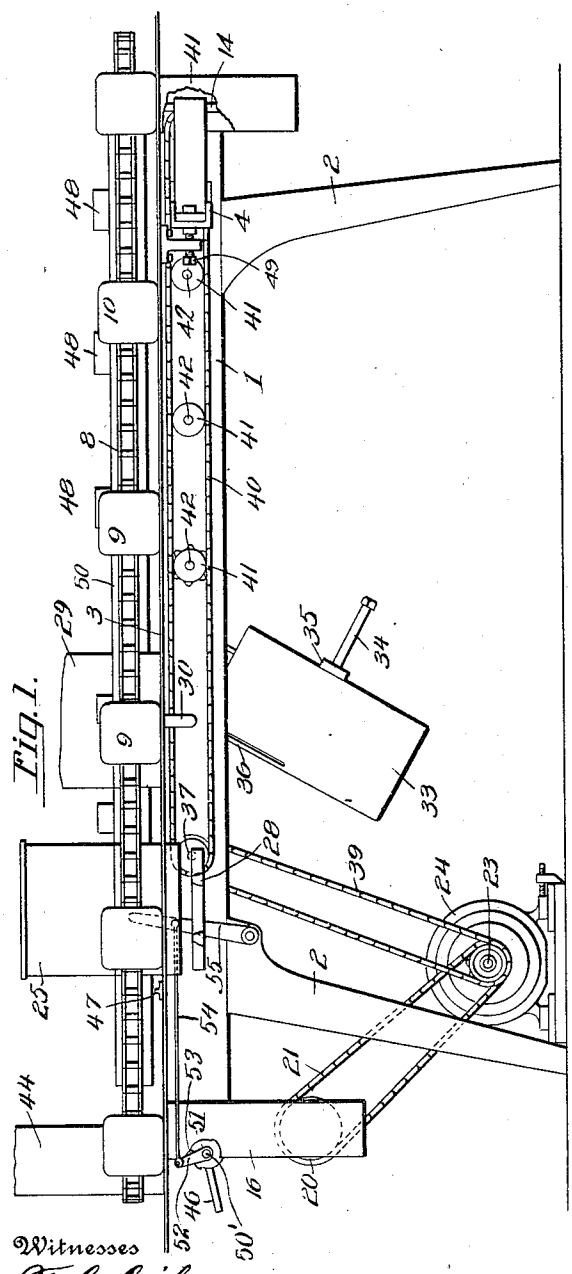


Fig. 1.

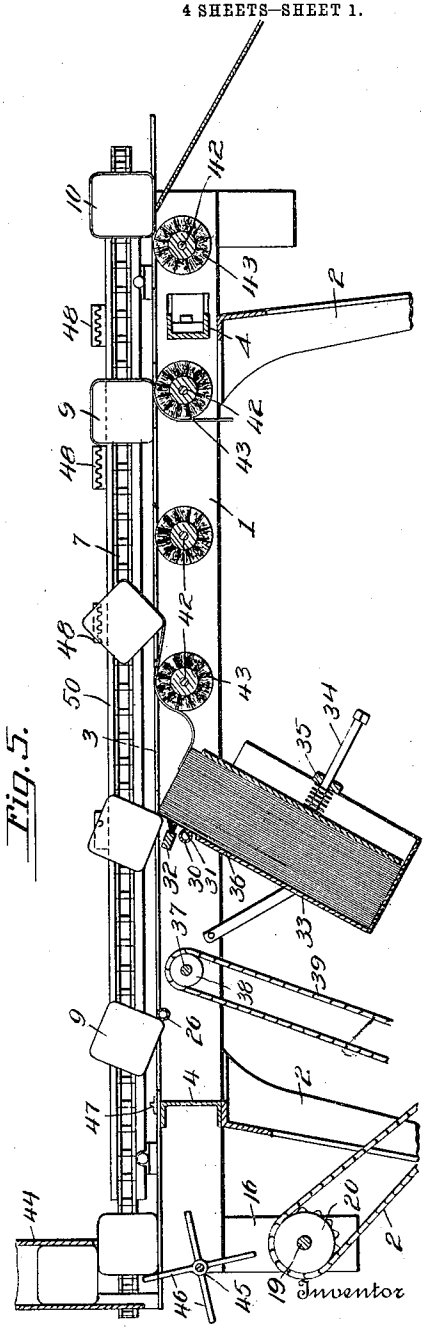


Fig. 5.

Witnesses

F. C. Gibson.

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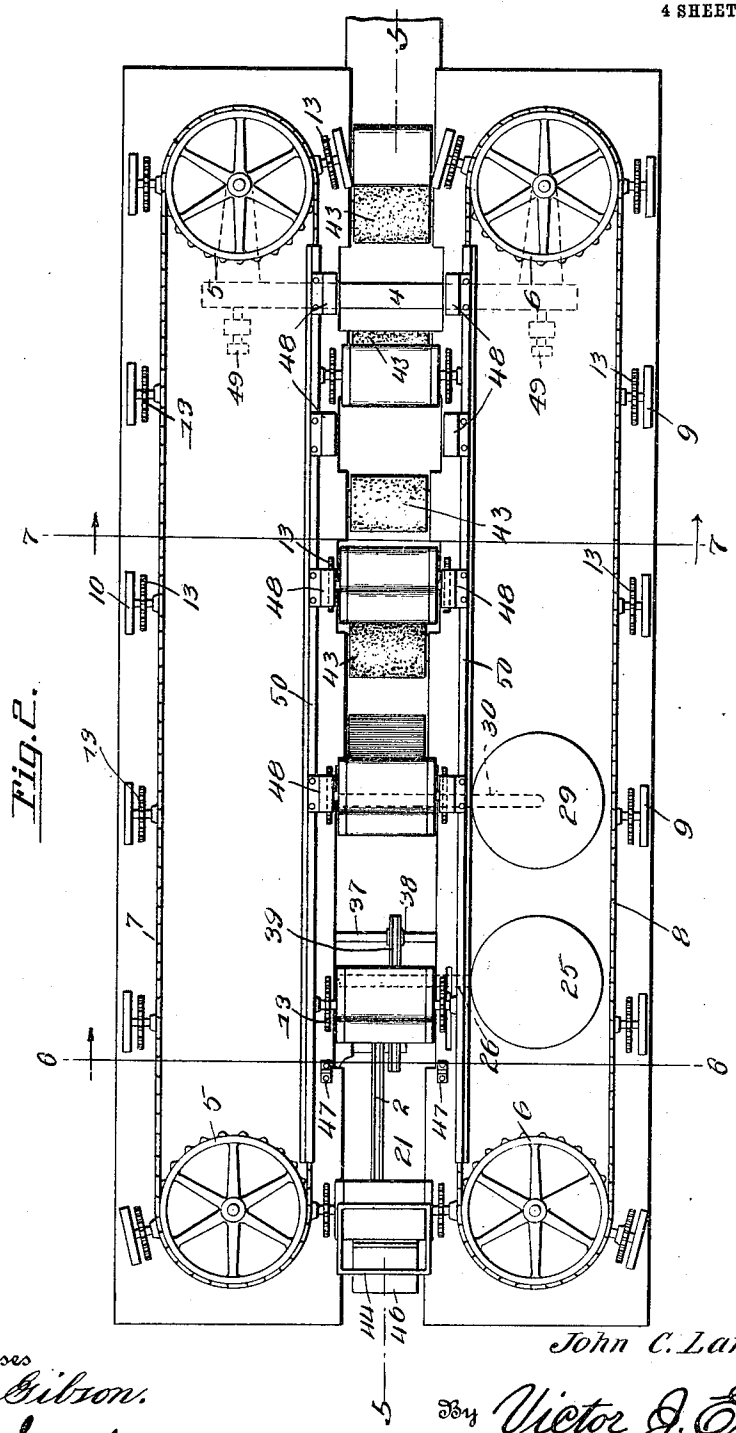


Fig. 2.

Witnesses

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4 SHEETS—SHEET 3.

Fig. 3.

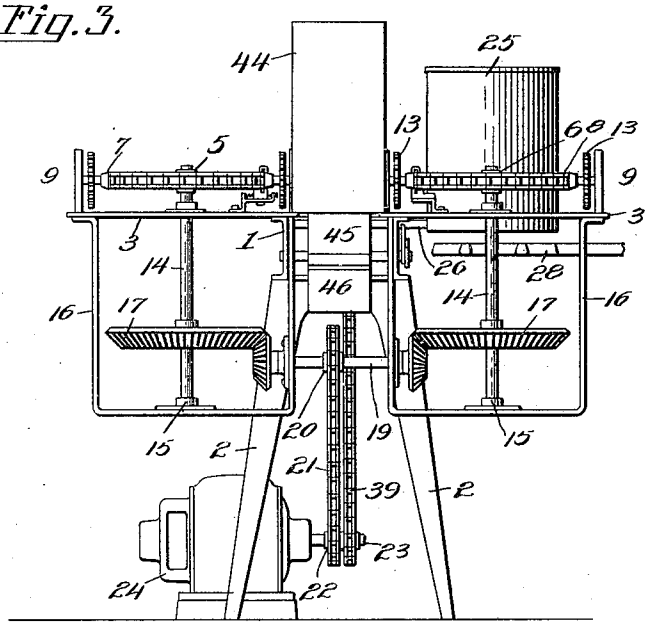


Fig. 4.

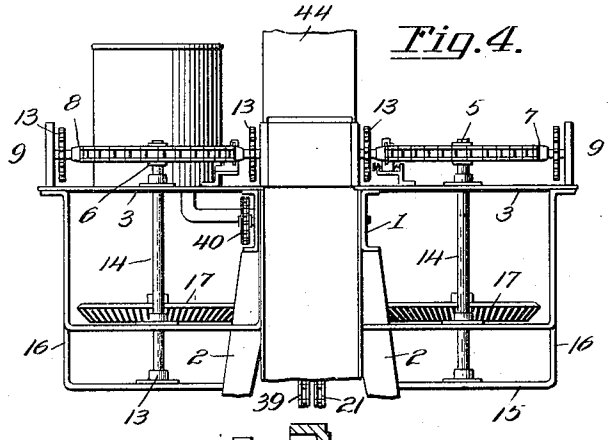
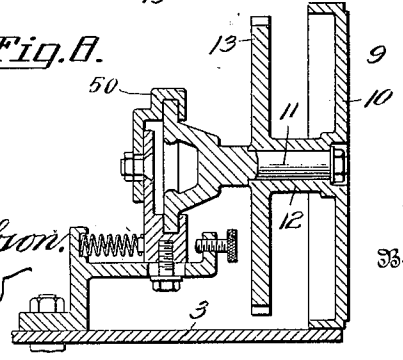


Fig. 8.



Witnesses

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4 SHEETS—SHEET 4.

Fig. 6.

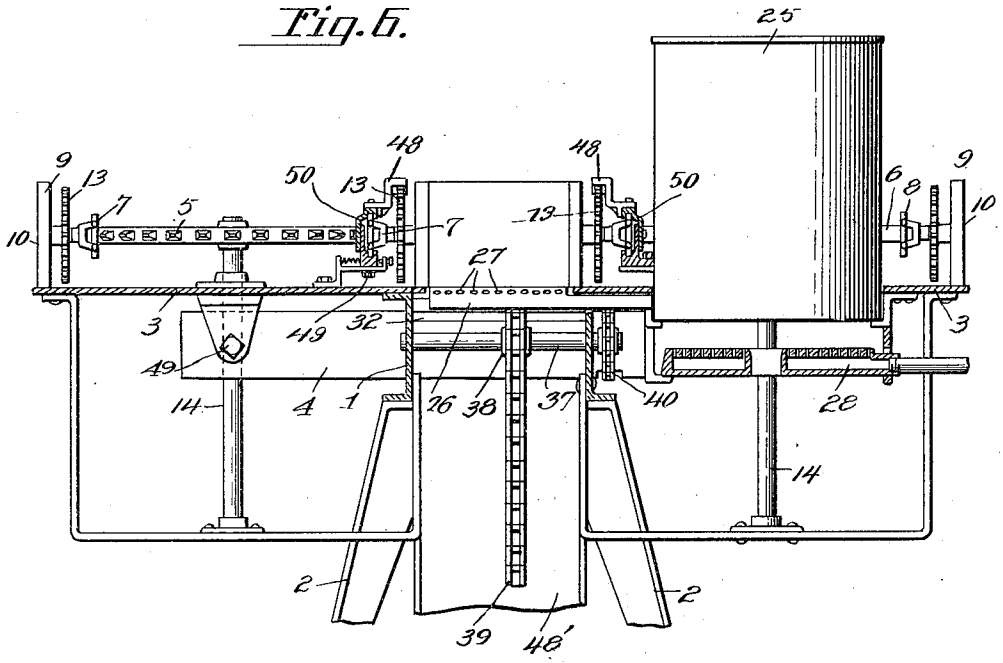
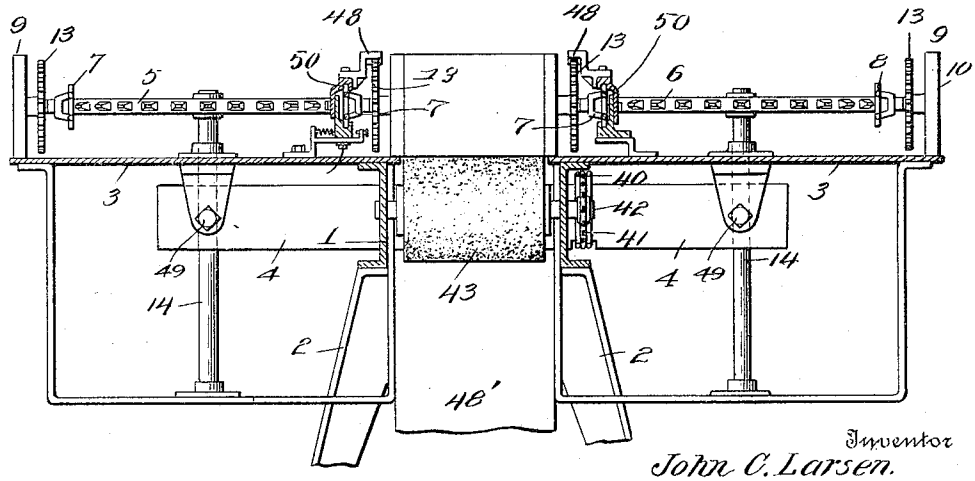


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN C. LARSEN, OF CHICAGO, ILLINOIS.

LABELING-MACHINE.

1,134,876. Specification of Letters Patent. Patented Apr. 6, 1915.

Application filed May 23, 1913. Serial No. 769,433.

To all whom it may concern:

Be it known that I, JOHN C. LARSEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Labeling-Machines, of which the following is a specification.

The invention relates to an improvement in labeling machines designed particularly for automatic labeling of cans, and comprehends a structure in which the can, whether of angular or circular shape in cross section, will be automatically supplied with the label during the travel of the can lengthwise the machine.

The main object of the present invention is the provision of a labeling machine in which the cans are initially supplied with adhesive which at a predetermined point in the travel of the can in the machine causes an adherence between the can and desired label, the label proper being supplied with a suitable adhesive as it is moved toward the can engaging position in the operation of the machine, mechanical means being employed to exert the proper smoothing pressure upon the label to cause the same to adhere to the can body.

The invention in its preferred form of details will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is a view in side elevation of the improved machine. Fig. 2 is a plan view. Fig. 3 is an end elevation from the feeding end. Fig. 4 is an end elevation from the discharge end. Fig. 5 is a longitudinal sectional view through the machine. Fig. 6 is an enlarged transverse section on the line 6—6 of Fig. 2. Fig. 7 is an enlarged transverse section on the line 7—7 of Fig. 2. Fig. 8 is an enlarged sectional view of one of the grippers.

Referring particularly to the accompanying drawings, the improved labeling machine comprises a main frame 1 supported upon the legs 2 or other suitable underlying structure. The frame comprises longitudinally extending side plates 3 connected by end bars or plates 4. Rotatably mounted at the respective ends of the side plates 3 are sprocket wheels, the sprocket wheels 5 on one side plate constituting the feeding means on that side while similar sprockets 6 on the opposing side plate constitute the can feeding means on that side. The sprockets 5 are connected by an endless carrier chain 7 the sprocket 6 being connected by similar endless sprocket chain 8. The sprocket chains thus travel over a path which is above the direct side plate, the inner length of travel of the respective chains providing the operative portion of the can feeding means, that is to say the inner section of the respective chains in their travel about the sprocket wheels, move on parallel lines and together provide a means for gripping the ends of the can and carrying same lengthwise the machine. At determinate intervals each chain 7 and 8 is provided with what I term a gripping member 9, comprising a plate 10 fixed upon a shaft 11 rotatably mounted in a bearing 12 carried by the chain, the gear or tooth wall 13 being arranged upon the shaft intermediate the plate and bearing.

The shaft 14 of the sprockets 5 and 6 at the forward or feed end of the machine extends below the plate 3 being mounted on the bottom 15 of the housing 16. On said shaft are arranged beveled gears 17 adapted to mesh with beveled gears of a transversely disposed shaft 19 supported in the uprights or legs of the frame. On the shaft 19 is arranged a sprocket 20 connected by a chain 21 with the sprocket 22 mounted upon the shaft 23 of the motor 24 of any suitable type. By this means a uniform and simultaneous movement is imparted to the chain 8 so that carriers 9 travel lengthwise the machine in transversely alined disposition.

Secured upon one of the plates 3 is a receptacle 25 for a suitable adhesive preferably glue, from which extends a pipe 26 arranged transversely between the adjacent sections of the respective chain and formed in its upper surface with a series of perforations 27. The pipe 26 is arranged so that the can traveling lengthwise the machine passes just above and in contact with the pipe so as to receive the material delivered by gravity through the perforation. A heater 28 is preferably supported below the receptacle 25 to maintain the adhesive in proper fluid condition.

Secured upon that plate 3 carrying the glue pot, and in advance of the latter in the direction in which cans are traveling is arranged a paste pot 29 having a lateral paste tube 30 extending transverse the machine below the path of travel of the can and formed

with forwardly projecting outlets 31. Immediately above the outlet from the pipe 30 is arranged a brush 32 for spraying the paste in a manner to be presently described. Secured below the plates 3 and immediately in advance of the pipe 30 is a label receptacle 33 movably supported upon a spring pressed rod 34 mounted in a brace 35 suitably connected in the main frame. The forward wall of the receptacle 32 is preferably in the form of a tension spring 36 whereby proper tension is maintained upon the labels in the box without regard to their number or thickness. In this label receptacle the contact wall carried by the rod 34 acts as a follower to always press the labels toward the tension spring 36, and the labels are arranged on edge within this receptacle with the backs of the labels toward the approaching can. It will be noted that the bottom of the receptacle is downwardly and forwardly inclined with respect to the travel of the can so that that label next the tension spring 36 will have its upper edge disposed above the upper edges of the following labels. The parts are so arranged that the upper edge of the first label in the box, that is the label made by the traveling can, is arranged in the path of travel of the can, that is in position to be engaged by the can as it moves longitudinally of the machine.

Mounted below the plate 3 carrying the paste pot preferably upon a depending extension 37 thereof is a sprocket wheel 38 of double type adapted to be driven by a chain 39 from the motor and in turn operate the chain 40 extending longitudinally of the frame and some distance beyond the paste pot coöperating with and driving four sprockets 41 arranged in longitudinal alinement. The sprockets 41 are mounted upon transverse shafts 42 which extend across the machine and carry brushes 43 which are adapted to contact with the surface of the can, or the label thereon as the can advances.

The can chute 44 is arranged at the initial or feed end of the machine into which the cans are placed in succession and from which they are delivered to the carriers. Mounted upon the frame below the can chute is a placing member 45 having diametrically opposed arms 46. The placing member is driven by the sprocket chain forming the carrier so that said member receives the can from the chute 44 and delivers it within the hold of the opposing gripping members 9. The placing member 45 is mouted upon a shaft 50′ which is provided at one end with the ratchet 51. An arm 52 is loosely mounted on the shaft and carries a pawl 53 for cooperation with the teeth of the ratchet. The arm is connected through the medium of the rod 54 with the lever 55, the upper end of which is in the path of the carrier shafts so that as each of the latter travels past the lever, the placing member is rotated as will be obvious. Secured upon the frame intermediate the can chute and glue pot is a trip or toothed section 47 designed to coöperate with the pinion 13 on the shaft 11 of the gripping members, whereby the plate 10 is partially rotated to turn the can partly over after delivery to the grippers and prior to its contact with the glue feeding pipe. A plurality of such trip sections 48 is arranged in the path of the pinions of the grippers adjacent the brushes 43 there being one such section for each brush on each side of the machine whereby the can is turned to present successively fresh surfaces to the respectively successive brushes during the travel of the can in order that said brushes will completely smooth and press the label in position. At the delivery end of the machine where the travel of the chains about the end sprockets causes separation of the grippers the cans are delivered to the spring holding chute 48′ from which they may be delivered to any suitable form of carrier for transportation to a point beyond the machine.

By preference the sprockets 5 and 6 at the delivery end of the machine are not supported directly upon plates 3 but upon the cross bar 4 and the latter is made adjustable longitudinally of the plates 3 through the medium of ordinary adjusting screw 49 whereby to properly tension the chain for effective service. The plates 10 of the grippers are preferably guided during their operative travel of the machine against bars 50 supported on the edges of the plates 3 so as to insure an even movement of said plates and to avoid the ordinarily incident flexible movement of the chain to interfere with the pressure of the grippers upon the can.

In operation, the cans delivered from the chute 44 are carried between the hold by the opposing grippers of the chains and by said grippers carried throughout the full length of the machine. Initially the can is turned through the engagement of the pinions 13 of the particular grippers and in passing over the perforations 27 in the glue pipe 26 abstracts what may be termed a narrow line of glue longitudinally of the can. The can then passes the labels, and the contact of the line of adhesive engaging the outermost label causes the same to adhere to the can and to be withdrawn in the travel of the can from the label receptacle. In the movement of the label, in effect vertically from the label holder, the outer or more properly the rear surface of the label in riding over the paste feeders 31 receives a quantity of paste from said feeders which is distributed over the surface of the label as the label is drawn upward by the brush 32. The can continues this travel and the label is forced into movable contact with the can

by successive action of the brushes 43, the can through the medium of the trip sections 47 being successively and progressively turned to present a fresh portion of the label to each successive brush. The travel of the can and the extent of the brush surface provided by the successive brushes, is sufficient to cause the brush action upon all the outer surfaces of the can and hence the label, which is of course of a length less than the surface length of the can is certain to be smoothly pressed on to the can throughout the full length of the label. Beyond the brushes 42 the spreading of the grippers incident to the travel of the chain about the sprockets 5 and 6 releases the can and the latter falls into the chute 48'.

The present type of machine is designed for use with cans having angularly related sides as square cans, though it is to be understood that it will be clearly effective with round cans except that in the use with such cans it is not necessary to turn the can to apply the glue line thereto.

What is claimed is:—

1. A can labeling machine including a means for feeding the can lengthwise the machine, means for delivering the can body to a quantity of adhesive, a label box arranged in the path of travel of the adhesive covered portion of the can and having labels arranged on end, and means for distributing paste to the surface of the label as it is drawn from the box.

2. A can labeling machine including a means for feeding the can lengthwise the machine, means for delivering the can body to a quantity of adhesive, a label box arranged in the path of travel of the adhesive covered portion of the can and having labels arranged on end, means for distributing paste to the surface of the label as it is drawn from the box, and means for spreading the paste over the surface of the label prior to the engagement of the paste covered label surface with the can.

3. A can labeling machine including a means for feeding the can lengthwise the machine, means for delivering the can body to a quantity of adhesive, a label box arranged in the path of travel of the adhesive covered portion of the can and having labels arranged on end, means for distributing paste to the surface of the label as it is drawn from the box, means for spreading the paste over the surface of the label prior to the engagement of the paste covered label surface with the can, and means for applying pressure to the outer surface of the label subsequent to the label pasting operation.

4. A can labeling machine including a means for feeding the can lengthwise the machine, means for delivering the can body to a quantity of adhesive, a label box arranged in the path of travel of the adhesive covered portion of the can and having labels arranged on end, means for distributing paste to the surface of the label as it is drawn from the box, means for spreading the paste over the surface of the label prior to the engagement of the paste covered label surface with the can, and brushes for applying pressure to the surface of the label subsequent to the application of the paste to the label.

5. A can labeling machine including a means for feeding the can lengthwise the machine, means for delivering the can body to a quantity of adhesive, a label box arranged in the path of travel of the adhesive covered portion of the can and having labels arranged on end, means for distributing paste to the surface of the label as it is drawn from the box, means for spreading the paste over the surface of the label prior to the engagement of the paste covered label surface with the can, brushes for applying pressure to the surface of the label subsequent to the application of the paste to the label and means for turning the can during the travel of pressure action of the brushes thereon.

6. A can labeling machine including a means for feeding the can lengthwise the machine, means for delivering the can body to a quantity of adhesive, a label box arranged in the path of travel of the adhesive covered portion of the can and having labels arranged on end, means for distributing paste to the surface of the label as it is drawn from the box, means for spreading the paste over the surface of the label prior to the engagement of the paste covered label surface with the can, and a plurality of successively operating brushes to act upon the label in applying same to the can.

7. A can labeling machine including a means for feeding the can lengthwise the machine, means for delivering the can body to a quantity of adhesive, a label box arranged in the path of travel of the adhesive covered portion of the can and having labels arranged on end, means for distributing paste to the surface of the label as it is drawn from the box, means for spreading the paste over the surface of the label prior to the engagement of the paste covered label surface with the can, a plurality of successively operating brushes to act upon the label in applying same to the can, and means for turning the can intermediate the successive brushes.

8. A can labeling machine including a plurality of endless opposing carriers, grippers rotatably mounted in the carriers to receive the can between them for travel longitudinally of the machine with the carriers, and means for turning the grippers at predetermined points throughout the length of the can travel, and means for operating upon

the can body held between the grippers in the different positions of said body in the turning of the grippers.

9. A can labeling machine including endless chain carriers operative in a horizontally alined plane, grippers carried by the carriers and including plates, shafts secured thereto and rotatably supported by the chains, pinions carried by the shafts, means arranged at predetermined points in the travel of the carriers to engage the pinions to partly rotate the plates, and means for operating upon the can body held between the grippers in the different positions of said body in the turning of the grippers.

10. A can labeling machine including endless coöperating carriers to move the can lengthwise the machine, a glue pot supported at one side of the path of travel of the can and formed with outlets to engage the surface of the can in its travel, a label box in which the labels are disposed on edge, said label box being arranged adjacent the travel of the carriers, a paste pot arranged adjacent the label box and having paste delivery means adapted to contact with the label below the uppermost edge thereto and a brush arranged intermediate the upper edge of the label and the paste delivery means.

11. A can labeling machine including endless coöperating carriers to move the can lengthwise the machine, a glue pot supported at one side of the path of travel of the can and formed with outlets to engage the surface of the can in its travel, a label box in which the labels are disposed on edge, said label box being arranged adjacent the travel of the carriers, a paste pot arranged adjacent the label box and having paste delivery means adapted to contact with the label below the uppermost edge thereof and a brush arranged intermediate the upper edge of the label and the paste delivery means, and labeling applying brushes arranged beyond the label box.

12. A can labeling machine including endless coöperating carriers to move the can lengthwise the machine, a glue pot supported at one side of the path of travel of the can and formed with outlets to engage the surface of the can in its travel, a label box in which the labels are disposed on edge said label box being arranged adjacent the travel of the carriers, a paste pot arranged adjacent the label box and having paste delivery means adapted to contact with the label below the uppermost edge thereof, a brush arranged intermediate the upper edge of the label and the paste delivery means, label applying brushes arranged beyond the label box, and can receiving chute arranged beyond the brushes.

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

JOHN C. LARSEN.

Witnesses:

A. W. STADELMANN.

WILLIAM F. LOHMAR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."