

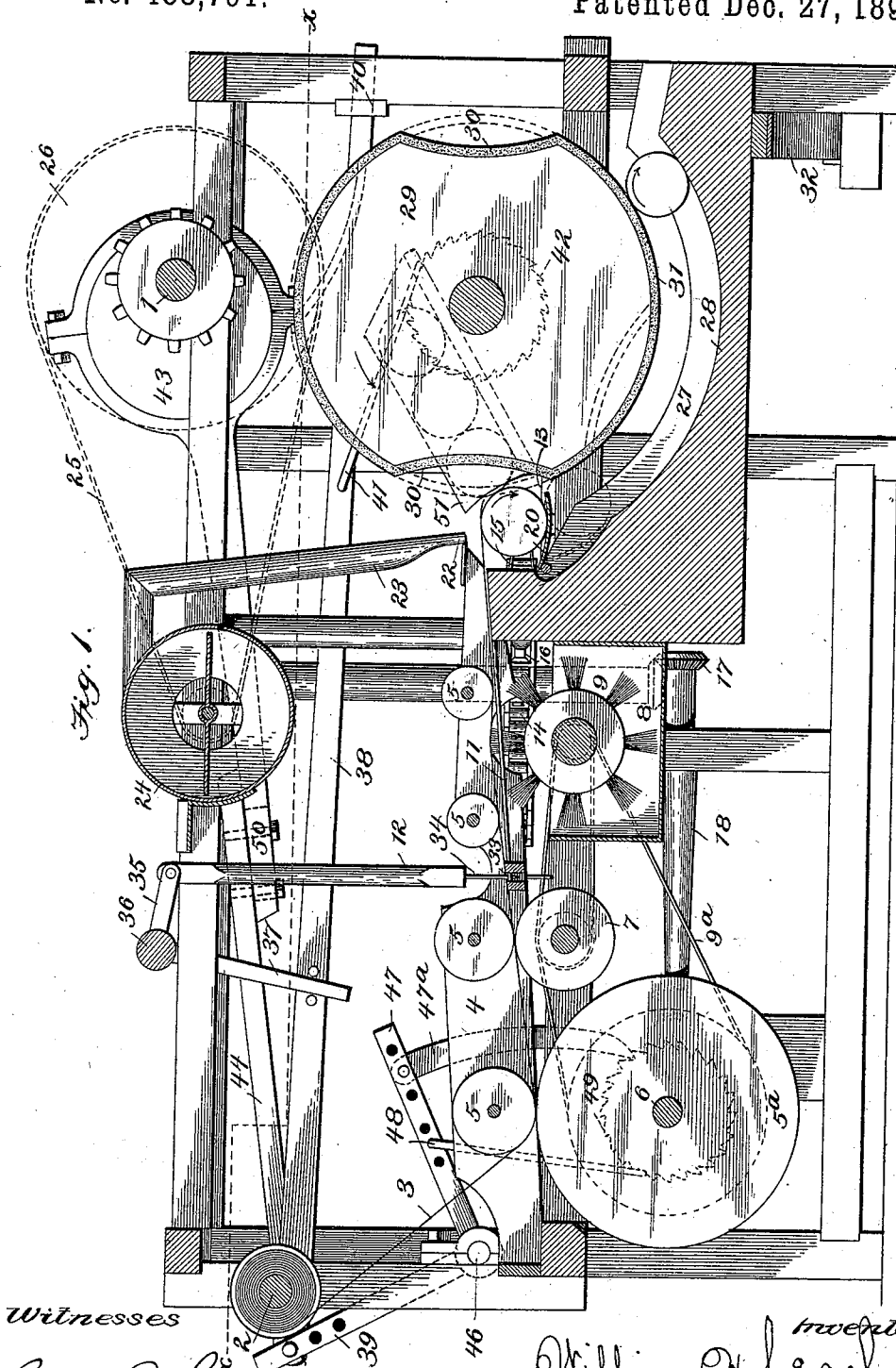
(No Model.)

2 Sheets—Sheet 1.

W. H. LEACH.
MACHINE FOR LABELING CANS.

No. 488,791.

Patented Dec. 27, 1892.



Witnesses

Ernest Johnson
J. M. Copenhagen.

Inventor.
By William H. Leach
Johnson & Johnson
his Attorneys.

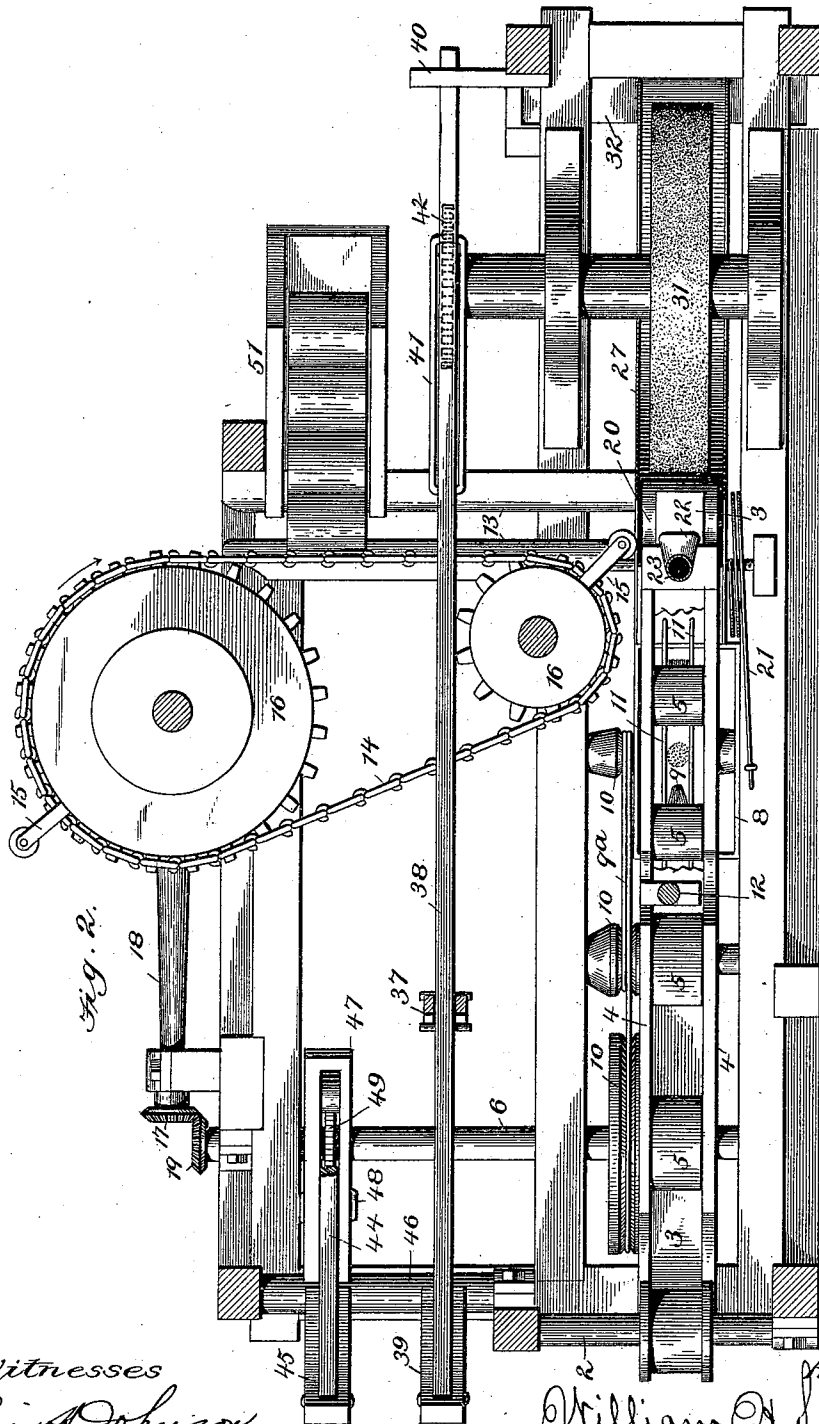
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Patented Dec. 27, 1892.



Witnesses
Eugene Johnson
J. M. Copehaver.

Inventor
William H. Leach
By Johnson
his Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM HENRY LEACH, OF CHENOA, ILLINOIS, ASSIGNOR OF ONE-HALF, BY
MESNE ASSIGNMENTS, TO K. D. HARGER, OF ELGIN, ILLINOIS, AND LUCY
A. HARGER, OF PONTIAC, MICHIGAN.

MACHINE FOR LABELING CANS.

SPECIFICATION forming part of Letters Patent No. 488,791, dated December 27, 1892.

Application filed May 13, 1892. Serial No. 432,894. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY LEACH, a citizen of the United States, and a resident of Chenoa, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Machines for Labeling Cans, of which the following is a specification.

For applying labels to canned goods I have produced a machine wherein the operation is rendered automatic in feeding labels in a continuous strip, in applying thereto the adhesive fluid, in delivering the cans to receive the labels, in rolling and pressing the label around the can, and in severing the label from the strip in the continuous operation of the machine. In these particulars I will now describe the devices illustrated in the drawings and will specifically set out in the claims concluding this specification, the parts and combinations of parts which constitute my invention.

In the accompanying drawings I have shown provision for an air blast as a means of applying the end of the glued label to the body of the can, but it is obvious that this provision may be dispensed with and the end of the label otherwise applied.

In these drawings—Figure 1 represents a vertical longitudinal section of my said can labeling machine, showing the can in position to receive the end of the label and to be seized and rolled with the label around it; Fig. 2 is a horizontal section of the same on the line $x-x$ of Fig. 1.

All the operating parts of the machine are mounted for conjoint operation in a suitable frame and their disposition is such, in the organization shown, that the power or primary shaft 1 is mounted at the top and near one end of the frame; while at the other end of the latter and near its top is mounted the shaft 2 of the paper roll, and from which the paper strip 3 on which the labels are already printed in series, is fed to the cans, and in a direction toward the other end of the machine. Between these two shafts and below them are arranged the mechanisms for the operations of feeding, gluing, perforating and applying the paper in the form of labels to the cans, and for the op-

erations of feeding the cans, wrapping the labels around them, and for delivering the labeled cans, which I will now describe.

4 is a guideway or walled passage for the strip of paper from the roll. It is open at the bottom, is arranged along the front side of the machine, and contains rolls 5 for holding the paper strip down upon the feed rolls and for the action of the pasting brush.

5^a is a feed roll placed below and entering the bottom of the paper guide, and is mounted upon a shaft 6 which extends across the frame and is operated from the power shaft in a way which I will presently state. 7 is a smaller feed-roll mounted on a short shaft, in advance of and driven from the larger feed-roll, and like it enters the bottom of the paper guide, so that the paper-strip is fed by these two rolls beneath the holding rolls 5 in the guide way.

8 is a glue containing box in advance of the feed-rolls; and 9 is a brush mounted therein and entering the paper guide way preferably between two of the holding rolls 5 therein, for applying the paste to the under side of the paper strip as the latter is fed along. The two feed-rolls and the brush are driven by a cord 9^a passing around pulleys 10 suitably arranged on the shafts of the rolls and of the brush. I prefer to support the paper above the brush by parallel wires or rods 11 through and between which the brush rotates in contact with the paper strip.

Just in advance of the smaller feed roll I arrange a vertically operating paper perforating device 12 for perforating the strip transversely at points between the printed labels, for the purpose and in the way which I shall presently describe.

At and below the delivery end of the guide way and at right angles thereto I place a horizontal way 13, on which the cans are slid to the point and in position to receive the label; and for sliding the cans in the proper order on this slide way to receive the label as it is presented, I provide an endless chain 14 having arms 15 disposed at the proper distance apart, and moved over the said way so as to come against the end of the can and slide it on said way to the proper point. This armed

chain feeder is mounted on sprocket wheels 16 one of which is operated from the shaft 6 of the feed roll by bevel gear 17 and a counter shaft 18 engaging equal bevel gear 19 on the roll and the pulley shafts, so that the presentation of the label and the delivery of the can to receive it shall be in the proper order. In the arrangement shown this counter shaft is at the rear side of the machine, while the operation of applying the labels to the cans is effected at the front side of the machine so as to be convenient for the attendant to see that the machine is properly working. The action of the chain arm is such as to deliver the can at right angles to and just beneath the open end of the paper guide way and just before the glued strip is fed over the body of the can, and I provide for supporting the can in this position a pivoted shelf 20, which is sustained by a spring 21 having sufficient tension to support the weight of the can and seen in Fig. 2, as connecting the shelf pivot and frame. It is in this position of the can and of the overhanging end of the glued paper strip that I apply this end of the strip to the body of the can, and I use as a means for doing this, an air blast directed on the paper from the flattened end 22 of a tube 23 connected with a suitable blower 24 driven by a belt 25 from a pulley 26 on the power-shaft. The end of the label having been blown down upon the surface of the can adheres thereto, and for the purpose of delivering the can from its supporting shelf and drawing and wrapping the label around it, I provide the following means: Connected to the delivery end of the paper guide way and in line therewith is a spring sustained trough 27, having a curved bottom 28 which extends from beneath the pivoted shelf and is wider than the length of the can which is delivered into said trough from said shelf and rolled down and out at its other end. Mounted in the frame above this curved trough and in line therewith is a wrapping wheel 29 having circumferential segmental cavities 30 at opposite points diametrically. The diameter of this wheel is of considerable size as compared with the can and its relation to the latter when supported on the shelf, is such that the circumferential line of said wheel will overlap the circumference of the can. The wheel is therefore provided with said segmental cavities in order that, in its rotation it will be intermittently arrested with one of said cavities in line with the endwise movement of the cans so that the latter will be moved in the path of the wheel. In this position of the can, the circumference of the wheel at its junction with the cavity, will strike the can on its top and rolling it will force it down, over and from its yielding spring sustained shelf upon the curved bottom of the trough, rolling the can between the two surfaces and thereby wrap the label smoothly around the body of the can and deliver the latter from the trough. The radius

of the recesses is greater than the radius of the can in order that the space between the delivery end of the paper guide and the wheel at its recessed circumference shall be ample for the passage of the can in being moved upon its supporting shelf. To give the circumference of the wrapping wheel a cushioned or yielding surface, I prefer to cover it with felt 31; while the trough supported at its delivery end by a suitable spring 32 will yield under the rolling action of the can thereon by the rotation of the wheel. In this operation it is important to notice that the feed of the paper-strip, the delivery of the can upon its shelf and the rotation of the wrapping wheel are so timed that the wheel will strike the end of the paper strip resting on the can and rolling the can in the direction of the turning of the wheel, will pull the paper forward over the body of the can. In this operation the air blast is delivered upon the glued paper, which is thereby pressed down upon the can and is thereby caused to adhere to the can, so that the action of the wheel and trough completes the wrapping and presses and smooths it down upon the can. The length of the label will of course be suited to the size of the can and it is severed from the strip by the pulling action of the wheel at a point that will bring the severed end of the paper in position over the next can as it is moved on the shelf. This severing of a label from the strip takes place at the line of perforations 33 and just before the perforator descends to perforate or puncture the paper strip for the next label. This perforator consists of a rod 12 having a line of pricking pins 34 depending into position in the paper guide above the paper strip and in advance of the small feed roll 7 from a crank arm 35 on a rock shaft 36 which, by an arm 37 is connected to a horizontal rod 38, one end of which is connected to an arm 39 on a short rock shaft and the other end slides in a guide 40 in the frame. At this guide supported end the rod 38 has a pawl 41 which takes into a ratchet 42 on the shaft of the wrapping wheel, so that this wheel and the perforator are operated in harmony for drawing and perforating the paper in the way I have stated. This operation is effected by an eccentric 43 on the power shaft and a rod 44 connecting this eccentric with an arm 45 on the short rock shaft 46 from which an arm 47 extends and carries two pawls 47^a and 48 which alternately engage a ratchet wheel 49 on the shaft of the large feed-roll 5^a, so that from this eccentric connection all the co-acting parts are operated. The alternate engagement of the pawls 47^a and 48 it must be noted will give an intermittent rotation to the large feed-roll and it is at the moment of such intermittent action of the feed-roll that the paper strip is held for severing the label as stated. The regulation of the speed of the operation is effected by the adjustments of the said pawls on their arm and the adjustments of the eccentric rod

with the rock arm 45 which operates the said pawls. In order to allow the latter adjustment the pitman-rod 44 is made in two parts fastened together by bolts 50 passing through slots or holes in the lapped ends. The pitman can therefore be adjusted on the arm 45, which has holes like the arm 37 for that purpose, without changing the relation of the pawls, and thereby regulate the feed.

The cans or bottles to be labeled are supplied from an inclined chute 51 so that they run down one by one upon the end of the slide way 13, and it will be understood that each can in said chute is supported in contact with each other and with the can resting on the slideway so that as the chain arm moves one can forward to the wrapping wheel another can will run down on the slide way in position to be moved forward by the next chain arm, so that the chute need only be kept supplied with cans to render the operation of the machine continuous, in the feed of the cans and in the feed of the paper printed strip to a point in the machine where they are brought together at right angles in their paths and at which they are united together by a rolling movement of the can in the line of the feed of the paper strip. In this operation the cans are fed to the paper strip automatically from one side of the machine, while the paper strip is fed from one end of the machine, and it is at the junction of these two movements that the paper strip, labeled as stated, is applied, the can and the glued paper strip then seized and rolled together between a rotating wrapping wheel and a yielding support, the frictional contact of the wheel gives to the can a positive rotary motion to effect the wrapping of the label thereon and to separate the label from the printed paper strip.

In the foregoing specification I have specifically described the relations of the various parts and their operating connections, but it is obvious that immaterial changes may be made in these matters, and for this reason I do not wish to be understood as limiting myself thereto in precise detail and construction. And, in the omission, in the several concluding claims, of any one of the elements of the machine, or the omission of reference to particular features of construction of the elements mentioned therein, is intended to be a formal declaration of the fact that the omitted elements or features are not essential to the invention severally covered therein. It will be also understood that my machine is equally well adapted for labeling bottles and other articles of cylindrical form.

Having thus described a machine embodying in preferred form the several features of my present invention in combination, what I separately claim and desire to secure by Letters Patent, is:

1. The combination, in a can labeling machine, of a guideway provided with parallel rods 11 and a transverse line of perforations

33 in its bottom, feeding rolls for the paper-strip, a perforator for said label-strip consisting of a vertical rod 13 having a row of pins 34 arranged to penetrate the strip at said bottom perforations, a paste brush revolving beneath said paper-strip and through the bottom rods in advance of the perforating device, means for operating the several parts and means for seizing and severing the label from the strip by a pulling action and applying the severed label to the can, substantially as described.

2. The combination, with the label paper strip feeding and supporting rolls, of a guide way for the paper strip, a box for containing adhesive liquid, a paste brush revolving beneath said paper strip, and a perforating device reciprocating above said paper strip, a trough and a wheel for applying the labels to cans, substantially as described.

3. The combination, with a feed for the label paper strip, and a guide way for said strip, of a movable shelf for supporting the cans at the delivering end of said guide way, a pasting device for said label strip, and means for feeding and delivering the cans to be labeled upon said shelf, a trough and a wheel for applying labels to cans, substantially as described.

4. The combination, with a feed for the paper label strip, and a guide way for said strip, of a spring sustained shelf for supporting the cans at the delivering end of said guide way, a pasting device for said label paper strip, and a laterally operating carrier for delivering the cans to be labeled upon said shelf, a trough and a wheel for applying labels to the cans, substantially as described.

5. The combination, with a feed for the paper label strip, a movable shelf for supporting the cans in position to receive the same, a pasting device for said paper strip, a yielding trough below said shelf, and a wheel having circumferential recesses for seizing and rolling said cans and the labels thereon within the trough, substantially as described.

6. The combination, with a feed for the paper label strip, a movable shelf for supporting the can in position to receive the same, a pasting device for the paper strip, a laterally operating carrier device for delivering the cans to be labeled upon said shelf, a yielding trough below said shelf, and a wheel having circumferential recesses for seizing and rolling said can and the label thereon within said trough, substantially as described.

7. The combination, with a feed for the paper label strip, a perforating device therefor, a pasting device for said paper strip, a movable shelf for supporting the can in position to receive the same, a laterally operating carrier for delivering the cans to be labeled upon said shelf, a yielding trough below said shelf, and a rotating device above said trough for seizing and rolling said can and the label thereon within said trough, substantially as described.

8. The combination, in a can labeling machine of a feed for the label paper strip, a suitable feeding and supporting guide way therefor, a pasting device, and a suitable support for the can to receive the label, with a blower arranged to deliver an air blast upon the end of the paper overhanging the can, a trough and a wheel for applying labels to cans, substantially as described.

9. The combination, in a can labeling machine of a feed for the label paper strip, a suitable feeding and supporting guideway therefor, a pasting device for said label strip, a movable support for the can to receive the label, a laterally operating carrier to deliver the cans to be labeled, a blower arranged to deliver an air blast upon the end of the label overhanging the can, a spring sustained trough beneath said shelf, and a wheel having circumferential recesses for seizing and rolling said cans and labels thereon within said trough, substantially as described.

10. In a machine for labeling cans, the combination, with a feed for the label paper strip, a pivoted spring sustained shelf for supporting the can in position to receive the same, a pasting device for said paper strip, a yielding trough below said shelf, a rotating device in position above said shelf, for seizing and pressing down, and rolling the can from its shelf, separating the label from the strip and rolling the can and label together in the way and for the purpose stated.

11. In a machine for labeling cans, the combination, with a feed for the paper strip, a movable shelf for supporting the can in position to receive the same, a pasting device for said label strip, a yielding trough below said shelf, and an intermittently rotating wheel above said trough having circumferential recesses and a circumferential pad or cushion for the purpose stated.

12. In a machine for labeling cans, the combination, with a feed for the paper strip, a fixed guide way therefor, a movable shelf for supporting the can to receive the end of the label, a pasting device for said paper strip, a laterally arranged fixed slideway for delivering the cans endwise upon said shelf, and a laterally operating endless carrier for moving the cans over said slideway and upon said shelf, a trough and a wheel for applying labels to cans, substantially as described.

13. The combination, in a machine for labeling cans, of a feed for the paper strip, a fixed guideway therefor, a movable shelf for supporting the can to receive the end of the label, a pasting device for said label strip, a laterally arranged fixed slideway for delivering the cans endwise upon said shelf, a laterally operating endless armed carrier for moving the cans over said slideway and upon said shelf, and an inclined chute arranged at the outer end of said slideway for automatically delivering the cans one at a time upon said slideway in position to support the other cans in said chute and to be slid forward by

the carrier arm and thereby allow another can to descend upon the slideway, a trough and a wheel for applying labels to the cans, substantially as described.

14. The combination in a machine for labeling cans, of a feed for the paper strip, a rotating pasting device therefor, a laterally operating endless carrier, and a rotating wrapping wheel, with a suitable fixed guideway for the label strip, a fixed guide way for the cans, a spring sustained shelf at the end of said guideway, a spring sustained trough below said wheel and mechanism for operating the several parts simultaneously in the way described.

15. The combination, in a can labeling machine, of a fixed guide way for the label, a movable shelf at the delivering end of said guideway, a spring sustained trough below said shelf, and a rotating wheel above said trough, for operation in the way described.

16. The combination, in a can labeling machine, of a fixed guide way for the label paper-strip, a movable shelf at the delivery end of said guideway, a curved trough below said shelf and forming a continuation of said fixed guideway, and a rotating device above said trough for seizing and rolling the can and label together, and means for delivering cans in succession upon said shelf, substantially as described.

17. A device for applying labels to cans consisting of a curved trough, a yielding shelf at the upper end thereof for supporting the can, and a wheel having circumferential recesses for seizing and rolling said can and the label thereon within said trough, substantially as described.

18. In a machine for labeling cans, the combination with a feed and a guideway for the label-paper-strip, a pasting device for said strip, a movable shelf for supporting the can to receive the same, a curved trough below said shelf, and an intermittently rotating wheel above said trough having a covering cushion and adapted to automatically seize, deliver and roll the can into and through said trough in the way substantially as described.

19. In a can-labeling machine, the combination, with a guide-way and a feed for the paper-label-strip, of a vertically reciprocating perforating device adapted to partially sever said strip transversely, a paste-brush rotating beneath said paper-strip in advance of said perforating device, a support for the can at the end of said guideway, and a rotating device at the end of said can-support constructed to seize and draw the strip forward, complete the severance of the label from the strip and apply it to the can in the way described.

20. The combination, in a can-labeling machine, of a guideway, and feed-rolls for the label-paper-strip, a rotating paste-brush beneath the paper-strip, and a perforating device above said strip, with mechanism for operating said feed-rolls, the paste-brush and

the perforator consisting of the pawls 47^a and 48, the rock-rod 46, having the arms 39, 45 and 47, the eccentric and its rod 44 connecting and operating said pawl arm 45, and the arm 38
5 connecting and operating said perforator, the shaft 6 and the ratchet-wheel 49 thereon for operating said shaft and the connections from the latter for operating the feed-rolls, substantially as described.

10 21. In a machine for labeling cans, in combination the eccentric 43, its pitman-rod, the rock-shaft 46, its arms 45, 39 and 47, the pawls on the latter, the shaft 6, the ratchet-wheel 49 thereon, a guideway and a feed-device for the
15 label strip, a paste device for the latter, a vertically reciprocating perforating device for said label-strip, the rod 38 connecting said

arm 39, and a crank connection 35 and 37 with said rod 38 for operating the perforating device, an intermittently rotating device for ap- 20 plying said labels to the cans, the ratchet-wheel 42 and pawl connecting it with said rod 38, and means for feeding the cans to the label applying device, the several parts being conjointly operated from said eccentric, sub- 25 stantially as described.

In testimony whereof I have hereunto signed this specification in the presence of two witnesses.

WILLIAM HENRY LEACH.

Witnesses:

MARTIN SHEPHERD,
JOHN DOODY.