

July 26, 1932.

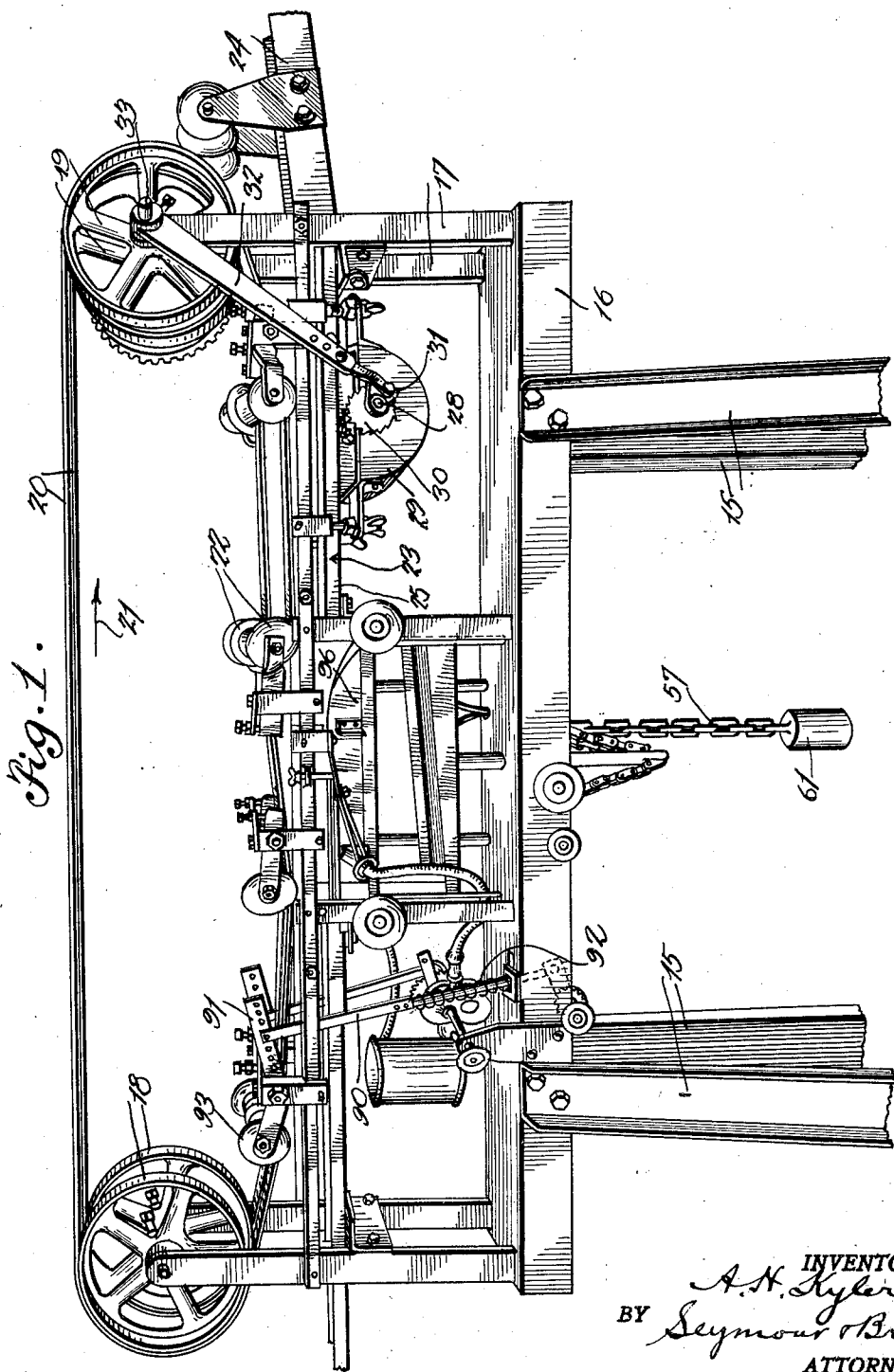
A. H. KYLER

1,869,065

MECHANISM FOR APPLYING LABELS TO CYLINDRICAL CANS OR THE LIKE

Filed April 7, 1930

7 Sheets-Sheet 1



INVENTOR
A. H. Kyler
BY Seymour & Bright
ATTORNEYS

July 26, 1932.

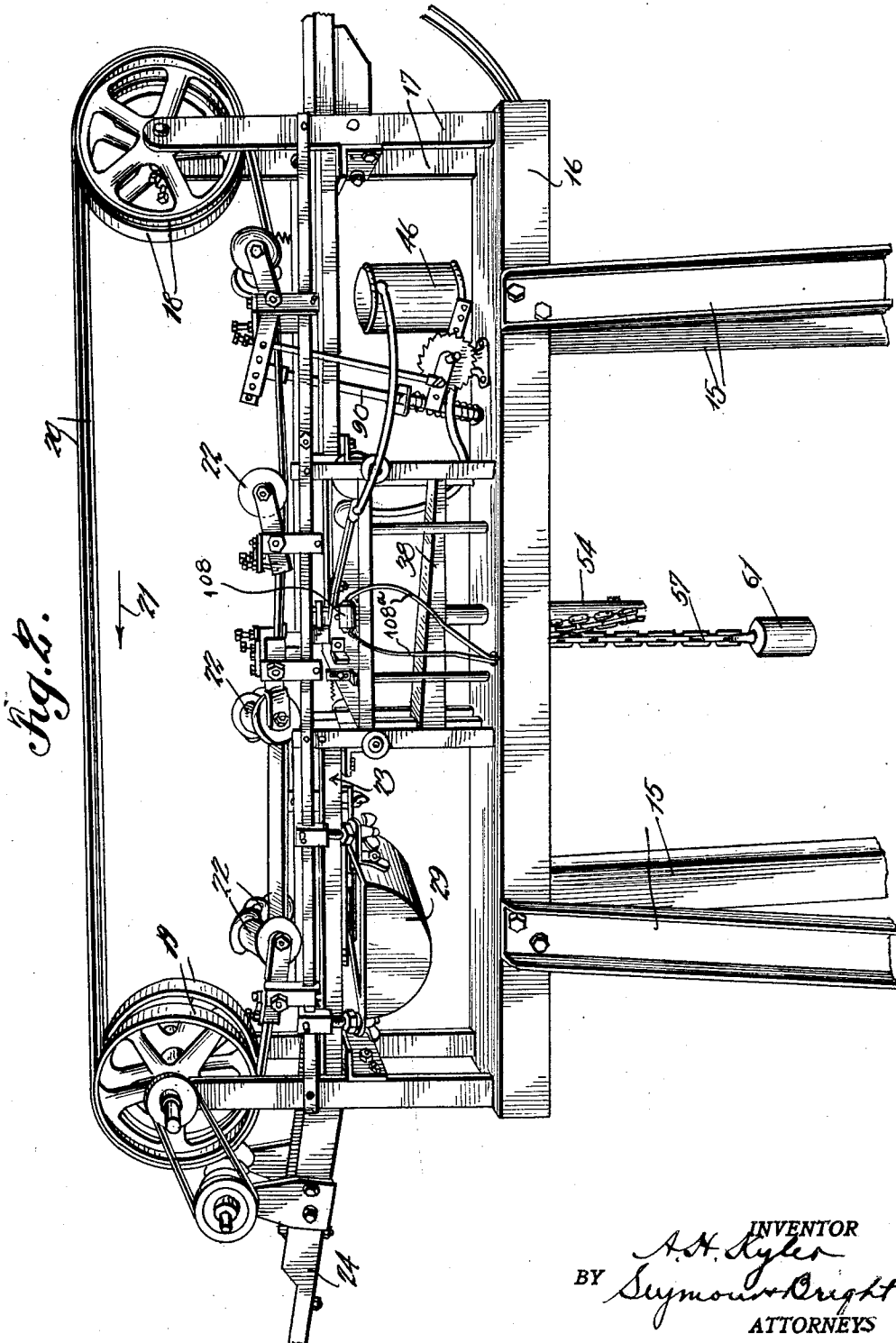
A. H. KYLER

1,869,065

MECHANISM FOR APPLYING LABELS TO CYLINDRICAL CANS OR THE LIKE

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7 Sheets-Sheet 2



INVENTOR
BY *A. H. Tyler*
Symonds & Bright
ATTORNEYS

July 26, 1932.

A. H. KYLER

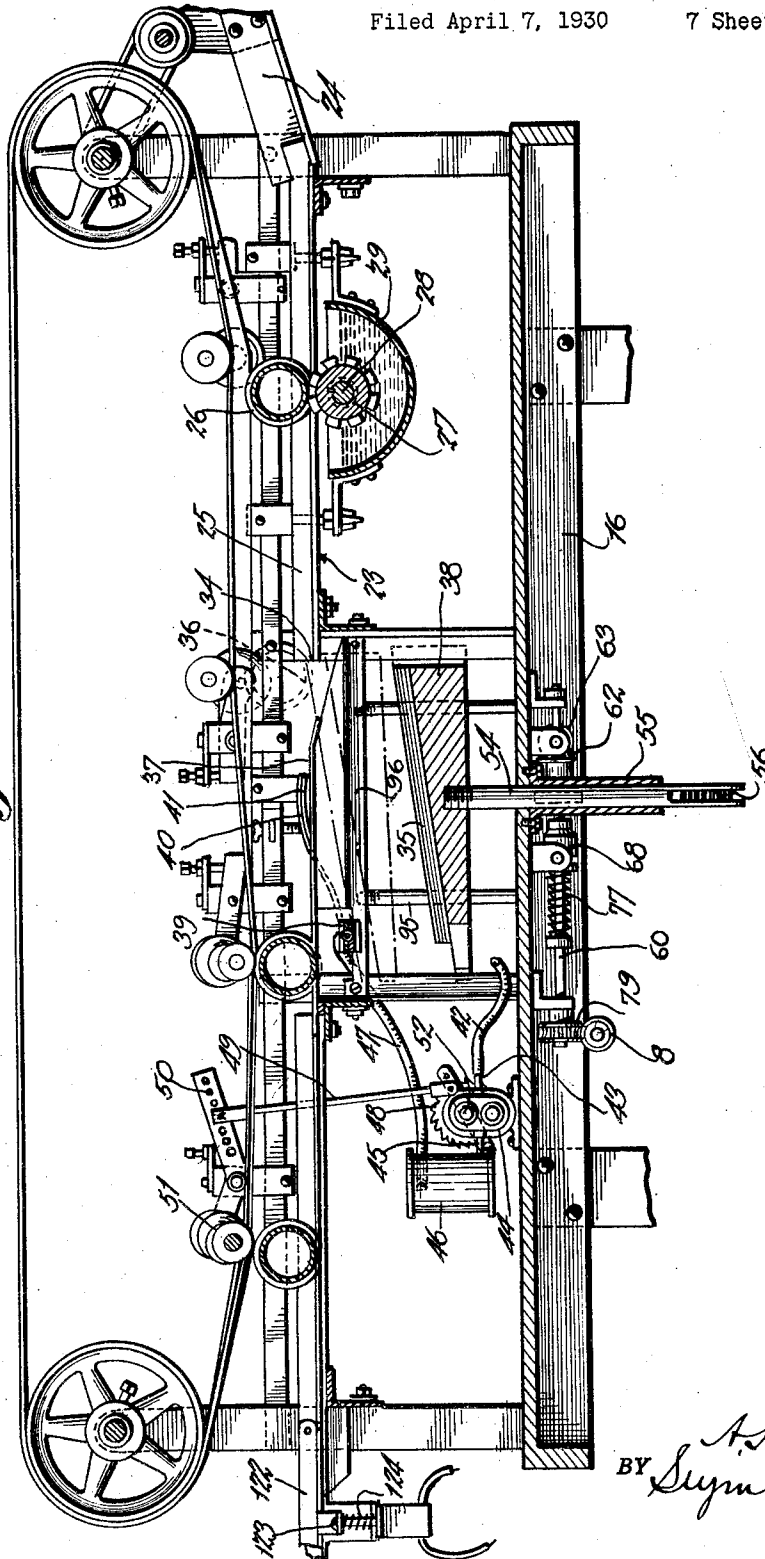
1,869,065

MECHANISM FOR APPLYING LABELS TO CYLINDRICAL CANS OR THE LIKE

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Fig. 3.



INVENTOR
A. H. Kyler
BY Seymour & Bright
ATTORNEYS

July 26, 1932.

A. H. KYLER

1,869,065

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7 Sheets-Sheet 4

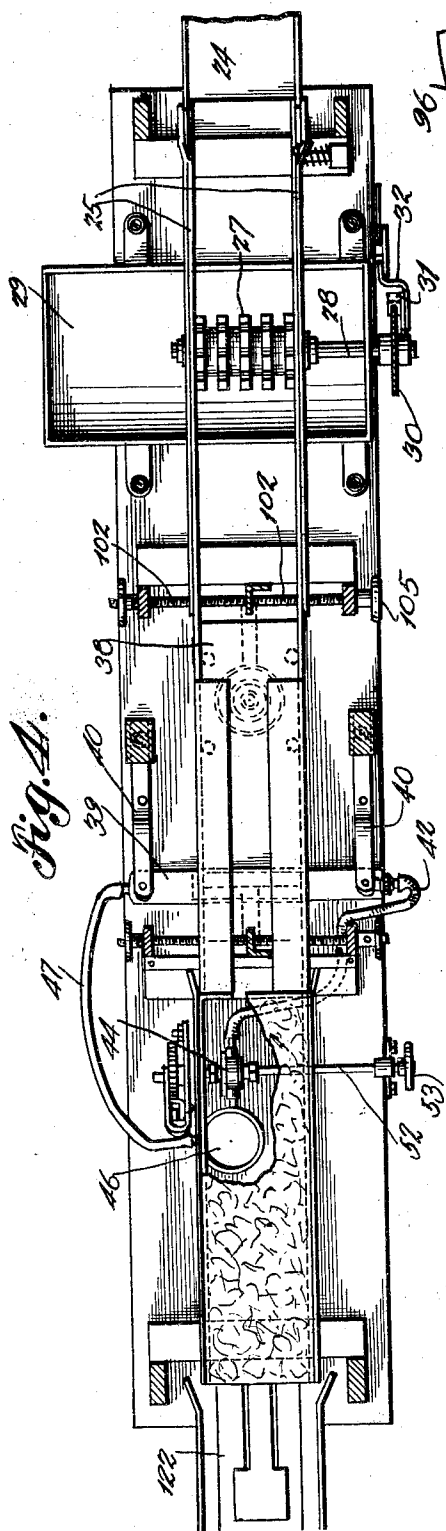


Fig. 4.

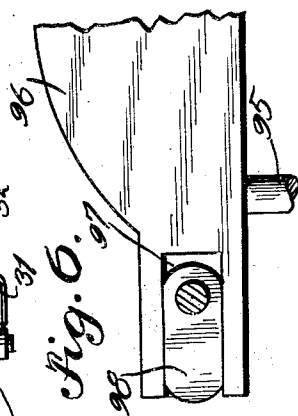


Fig. 6.

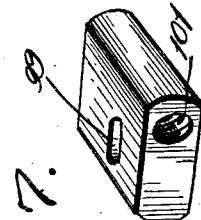


Fig. 7.

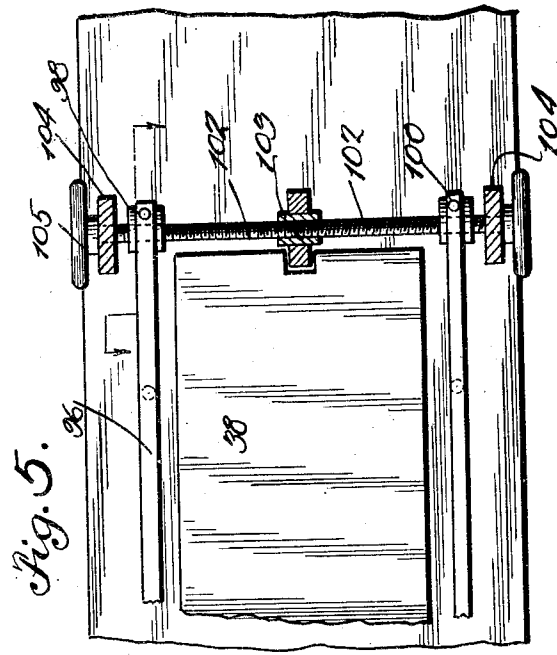


Fig. 5.

INVENTOR
A. H. Kyler
BY *Symons & Bright*
ATTORNEYS

July 26, 1932.

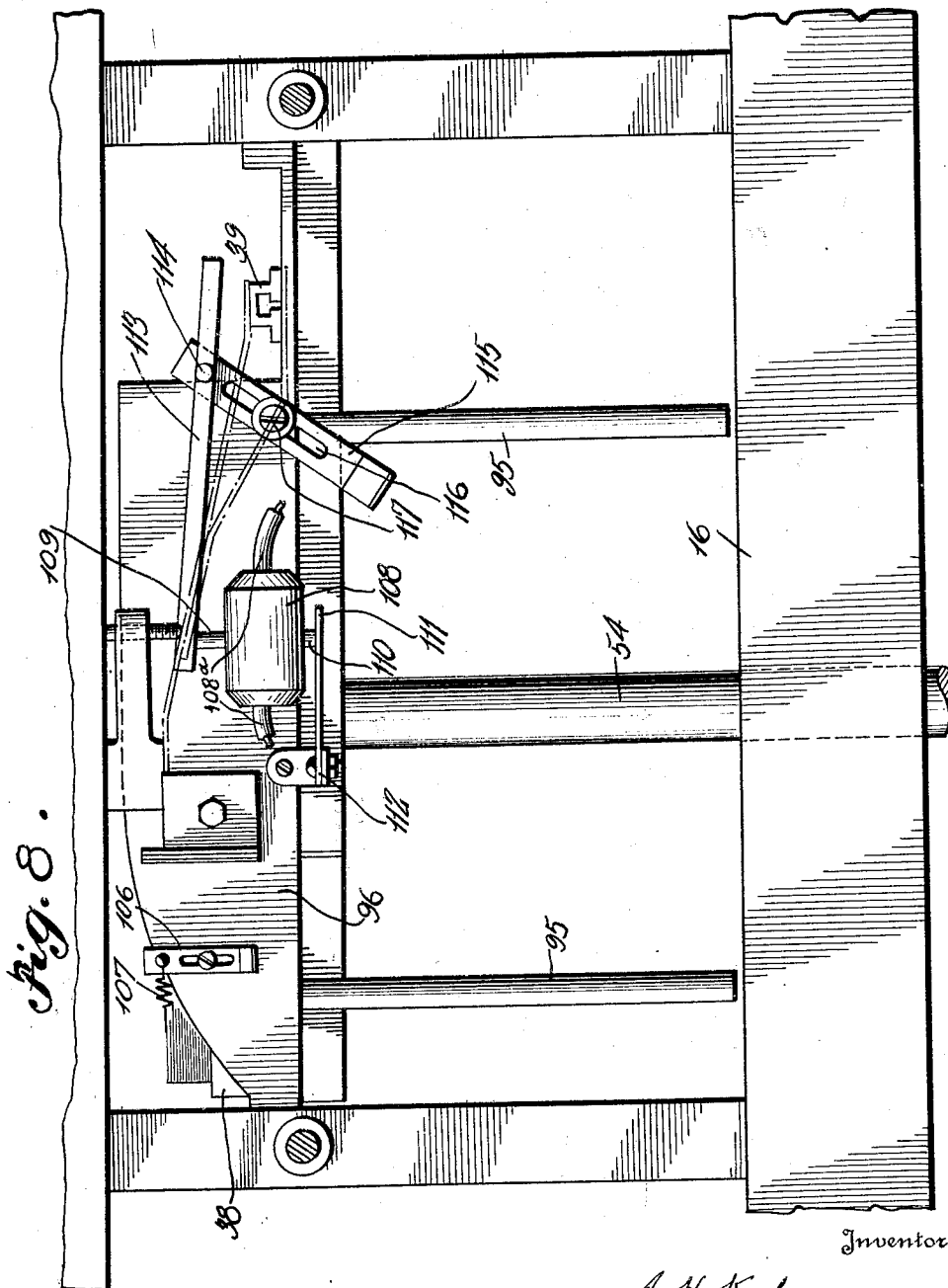
A. H. KYLER

1,869,065

MECHANISM FOR APPLYING LABELS TO CYLINDRICAL CANS OR THE LIKE

Filed April 7, 1930

7 Sheets-Sheet 5



Inventor

A. H. Kyle

 $\mathbb{B}_Y$

Symour Bright

Attorneys

July 26, 1932.

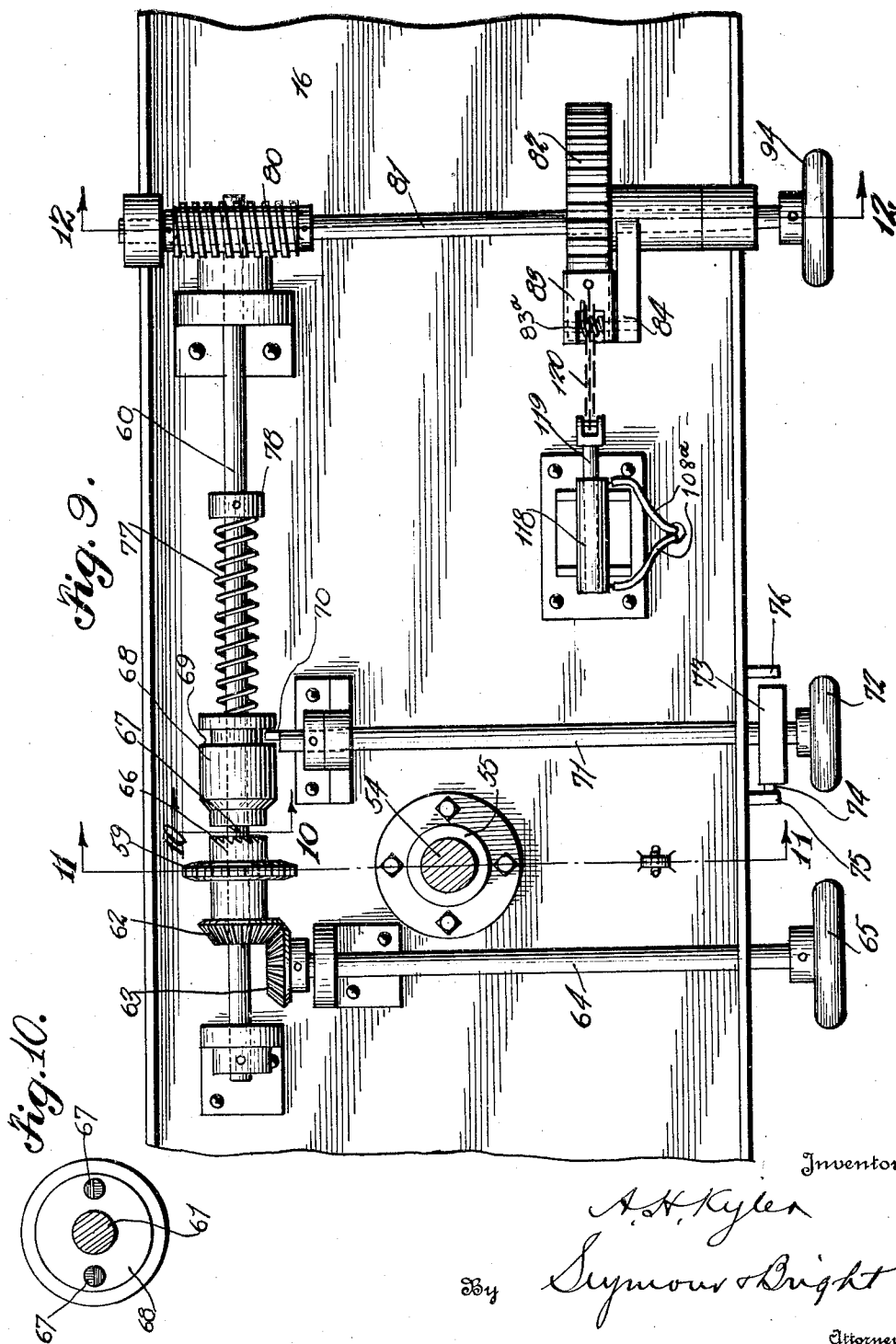
A. H. KYLER

1,869,065

MECHANISM FOR APPLYING LABELS TO CYLINDRICAL CANS OR THE LIKE

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7 Sheets-Sheet 6



Inventor

A. H. Kyler

Symour Bright

Attorneys

July 26, 1932.

A. H. KYLER

1,869,065

MECHANISM FOR APPLYING LABELS TO CYLINDRICAL CANS OR THE LIKE

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Fig. 11.

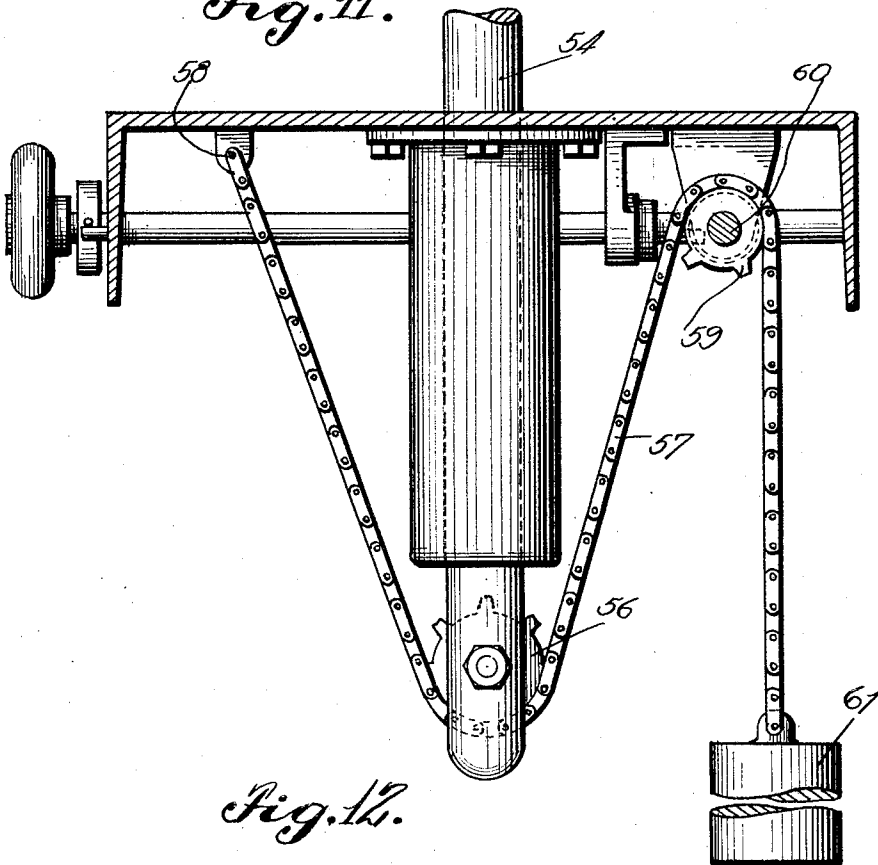
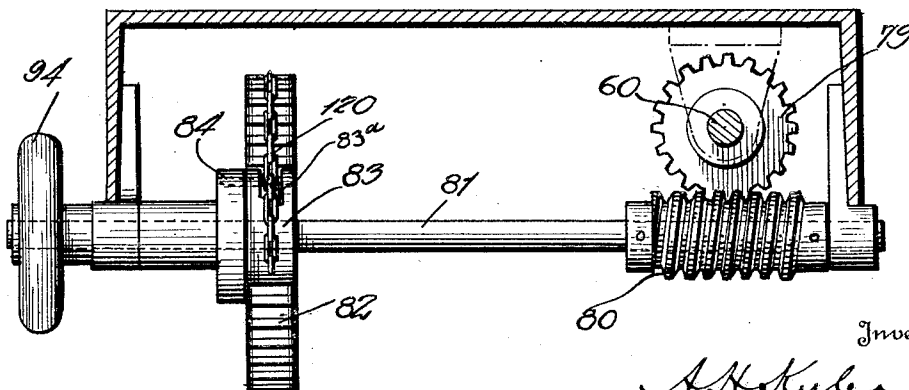


Fig. 12.



Inventor

A. H. Kyler

By *Seymour Bright*

Attorneys

UNITED STATES PATENT OFFICE

ALBERT H. KYLER, OF WESTMINSTER, MARYLAND

MECHANISM FOR APPLYING LABELS TO CYLINDRICAL CANS OR THE LIKE

Application filed April 7, 1930. Serial No. 442,213.

This invention relates to improvements in mechanism for applying labels to cylindrical cans or the like, and more especially to a novel apparatus of the type disclosed in my application Serial No. 337,673, filed February 5th, 1929.

In said application, I have shown a runway along which cans roll, and each can, in travelling along the runway, first contacts with a paste wheel which applies a series of spots of adhesive lengthwise of the can as the latter rolls along the runway. Subsequently, the rolling can contacts with the top one of a pile of labels on an elevator, and the spots of adhesive on the can cause the latter to pick up the label as the can rolls along, so that the label wraps itself about the can. Means are also provided for applying adhesive to the trailing end of each label for completing the applying of the label to the can, and afterwards, as the can rolls along, it contacts with a pad that functions to smooth the label out upon the can.

The primary object of the present invention is to improve machines of this type, and in the present machine, I have novel means for actuating the paste roller; for elevating the label platform; for guiding the labels; for manually actuating the adhesive pump; for automatically starting and stopping the label platform; and for automatically stopping the machine in case the line of cans jam along the runway due to failure of the operator to unload them with sufficient speed.

With the foregoing objects outlined and with other objects in view which will appear as the description proceeds, the invention consists in the novel features hereinafter described in detail, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

Referring to the drawings,

Fig. 1 is a side elevation of the improved machine.

Fig. 2 is a similar view but taken from the opposite side.

Fig. 3 is a longitudinal vertical sectional view of the same.

Fig. 4 is a horizontal vertical sectional view of the same.

Fig. 5 is a similar view of a detail, showing a portion of the means for laterally adjusting the guides for the label pile.

Fig. 6 is a fragmentary detail of a portion of the guide adjusting means.

Fig. 7 is a perspective view of another detail of said adjusting means.

Fig. 8 is an enlarged side elevation of the medial portion of the machine.

Fig. 9 is a bottom plan view of the medial portion of the machine.

Fig. 10 is a sectional view of a detail on the line 10—10 of Fig. 9.

Fig. 11 is a vertical sectional view on the line 11—11 of Fig. 9.

Fig. 12 is a similar view on the line 12—12 of Fig. 9.

In the drawings, 15 designates supporting legs which carry a platform 16 that is provided at its opposite ends with posts 17. These posts support rotary shafts on which pulleys 18 and 19 are mounted, the shaft which drives the latter being actuated by a suitable electric motor, not shown.

Belts 20 which move in the direction of the arrows 21, are mounted on the pulleys, and their lower runs are forced by guiding rollers 22 toward the runway 23 which is arranged between the platform and the belts.

The cans to be labeled are charged into the machine by means of an inclined chute 24, and from the latter, they roll on to parallel spaced tracks 25 (Fig. 3), which form a portion of the runway.

In Fig. 3, one of the cans is shown at 26, and this can is just contacting with the teeth of the paste roller 27, the latter being fixedly mounted on a rotatable shaft 28, and in its rotation, dipping into a paste trough 29.

For the purpose of moving the paste roller step by step while the machine is in operation, one end of the shaft 28 is fixed to a ratchet wheel 30, as shown in Fig. 1, and a pawl 31 which engages the teeth of the ratchet wheel, is actuated by a pitman 32 whose upper end engages a crank pin 33, arranged eccentrically on the shaft which supports the pulleys 19. It will be obvious from the foregoing that the crank pin 33, while the machine is in operation, will reciprocate the

pitman 32, and that this will cause the pawl 31 to turn the ratchet wheel step by step, whereby the paste roller 27 will intermittently rotate.

5 The distance between the paste roller and the delivery ends 34 of the tracks 25 is such that the can will complete one or more revolutions in rolling from the paste roller to the ends of the tracks, and consequently, by the
10 time a can reaches the ends of the tracks, the spots of adhesive with which it is provided, are in position to contact with the top label of a label pile 35, as indicated at 36 in Fig. 3. Therefore, as the can rolls
15 along, the leading end of the label will adhere thereto, and as the can rolls forwardly, this label will be wrapped to some extent on the can, before the latter rolls on to intermediate tracks 37 forming the medial
20 portion of the runway. These tracks are also spaced apart so as not to interfere with the wrapping of the label about the can.

At this point it may be well to state that the labels are supported in an inclined position, and that the lower or trailing end of
25 each label is brought by the supporting platform 38, into engagement with a paste distributing bar 39 that extends across the label pile, and consequently, as a can rolls across
30 the intermediate tracks 37, and wraps a label about itself, it will pull the trailing end of the label from beneath the paste bar 39, and as the latter has applied paste to the trailing end of the label, said trailing end will adhere to the can as the latter rolls along the
35 runway. This paste bar and its mounting are clearly disclosed in my prior application, but at this point, it may be noted that the bar is of floating character, and is supported by
40 the rear ends of spring arms 40, the other ends of said arms being secured to the frame of the machine at 41.

Paste is fed to the bar through a flexible conduit 42 which receives the same from
45 the outlet 43 of a gear pump 44; the intake 45 of the latter being joined to a supply tank or reservoir 46. Any surplus from the bar is returned to the reservoir by means of a hose 47.

50 The pump is intermittently actuated by a ratchet and pawl mechanism 48, the pawl of which is moved step by step through the medium of a connecting rod 49 that is pivotally joined to a bell-crank lever 50. One
55 end of this lever carries a roller 51 which bears upon the lower runs of the belts. As each can rolls along the runway, the roller 51 will be elevated, and the rod 49 will be depressed so as to move the pump step by
60 step.

As it is necessary that the paste bar be supplied with paste before the machine commences to actuate, I provide the shaft 52 of the pump with an extension and a hand wheel
65 53, so that the operator can manually actuate

the pump for the purpose of initially forcing a desired amount of adhesive to the paste bar.

In the present machine, the label elevator platform 38 is supported by a vertically reciprocating post 54 which is guided by a
70 sleeve 55 that depends from the platform 16.

As best shown in Fig. 11, a sprocket wheel 56 is rotatably connected to the lower end of the post, and engages a sprocket chain 57, one end of which is anchored to the platform at 58. The chain passes upwardly from the sprocket wheel and extends over a second sprocket wheel 59 that is loosely
75 mounted on a shaft 60, and the opposite end of the chain is connected to a weight 61, the latter functioning to keep the chain taut and to lift the elevator post 54.

In order that the platform may be rapidly raised or lowered, manually by the operator, the hub of the sprocket wheel 59, as shown in Fig. 9, is fixed to a bevel gear 62, the latter meshing with a similar gear 63 which is fast to the inner end of a transverse shaft 64, the latter being supported by suitable bearings on the under side of the platform 16, and having a hand wheel 65 at its outer end. Obviously, when this hand wheel is turned, the gears 63 and 62 will cause the sprocket wheel to move the chain 57 so as to raise or lower the platform.
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Normally, however, the platform is automatically elevated, and to this end, the hub of the sprocket wheel 59 is provided with clutch teeth 66, any one of which may engage a clutch tooth 67 on a collar 68 which is slidably mounted on the shaft 60. To provide for the sliding movement of the collar, the latter is equipped with an annular groove 69 that cooperates with a pin 70 eccentrically arranged on the inner end of a transverse shaft 71 which is rotatably mounted in suitable bearings on the under side of the platform 16, and which is provided at its outer end with a hand wheel 72. Between this hand wheel and one side of the platform, the shaft is provided with a fixed disk 73 that has a radial projection 74 which cooperates with stop pins 75 and 76 that project from the side of the platform. When the projection engages the pin 75, the tooth 67 will be out of engagement with the teeth 66, but when the projection is turned to bring the same into contact with the stop pin 76, a coiled spring 77 will act to force the teeth into engagement. The spring 77 is coiled about the shaft 60, and one of its ends engages the collar, and its other end engages a fixed collar 78 mounted on the shaft.
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When the teeth 66 and 67 are meshing, it will be understood that the rotation of the shaft 60 will cause the sprocket wheel 59 to turn and thereby actuate the sprocket chain, and for the purpose of turning the shaft 60 step by step, this shaft is provided at one end with a fixed worm gear 79 that engages
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a worm 80 which is fast on a shaft 81. The latter is equipped with a fast ratchet wheel 82 that cooperates with a pawl 83 which is pivotally mounted on a rocking member 84. The latter is moved step by step by means of a connecting rod 90 (see Fig. 1), which has its upper end pivotally connected to one arm of a bell-crank lever 91, and cooperates with a coiled spring 92 that acts to move the bell-crank lever in such direction as to force a pressure roller 93, carried by the other end of the bell-crank against one of the belts 20. From this it will be seen that each can in passing through the machine, will raise the roller 93 and move the bell-crank 91, so that the connecting rod 90 will move the pawl 83 to cause the shaft 81 to move step by step. This movement, through the medium of the worm gears, will be imparted to the shaft 60, and the collar 68, which is splined to said shaft, will intermittently rotate the sprocket wheel 59, and thereby elevate the platform step by step.

A hand wheel 94 is fast on the outer end of the shaft 81, to permit the latter to be turned manually when desired.

Vertical guide rods 95 for the pile, cooperate with the platform, and each pair of these rods depends from a horizontal supporting bar 96. The ends of each bar are furnished with notches or slots 97 that function as guides for slide blocks 98. Each of these blocks has a slot 99 that is elongated lengthwise of the machine and engaged by a pin 100, on the corresponding side bar, whereby some pivotal movement may take place between the bar and its corresponding supporting block.

Each block has a screw threaded bore 101, and hand screws 102 extend through these bores and have their inner ends swiveled in a bearing 103 supported by the frame. The outer ends of the screws are also swiveled in posts 104 of the frame, and a hand wheel 105 is provided at the outer end of each screw. It will be understood that the turning of the screws will cause the bars 96 to move toward or away from each other, and if the two screws at the ends of a bar are not turned in unison, the slot and pin construction 99 and 100 will allow a bar to be moved out of parallel relation with the other bar without jamming or breaking the parts.

As best shown in Fig. 8, a bracket 106 is adjustably mounted on one of the bars and supports a spring finger 107 that rests on the leading end of the label pile and functions to hold the topmost label of the pile always in proper position to be engaged by the can as the latter rolls along the runway.

The platform elevating mechanism is so constructed as to elevate the labels faster than they are taken off by the cans, and means are provided for intermittently disengaging the pawl 83 from the ratchet wheel

82, for the purpose of always having the topmost one of the labels in proper position to be taken off by the rolling cans. To this end, as best shown in Fig. 8, one of the side bars 96 supports a two-button switch 108, which is connected to wires 108^a forming part of an electric circuit in which a solenoid 118 (Fig. 9) is interposed. The switch has an upwardly extending button 109, and a downwardly extending button 110, the latter engaging a leaf spring 111 which is supported by a bracket 112, and acts to normally press the button 110 upwardly for holding the switch in open position. The upper button 109 abuts against one end of a lever 113 which is pivotally mounted at 114 on a support 115. The other end of the lever is arranged to be struck by the paste bar 39 when the latter is elevated sufficiently by the label pile. Obviously, when the paste bar 39 rises, it will impinge against the lever 113, and cause the latter to rock, so as to depress the button 109 and close the switch for the purpose of energizing the solenoid 118. The latter has its core 119 connected by a chain 120 to the pawl 83, and the latter is normally pressed against the ratchet wheel by a coiled spring 83^a which surrounds the pivot pin on which the pawl rocks. Therefore, when the solenoid is energized, the pawl will be pulled away from the ratchet wheel 82 and thus the upward movement of the label platform may be halted.

As the cans roll over the platform and pick off the labels, it is obvious that the paste bar 39 will descend, and as soon as it is lowered to a predetermined level, the spring 111 will again open the switch, so that the solenoid will be de-energized, and the spring 83^a will again force the pawl to engage the ratchet wheel.

The support 115 is preferably adjustably mounted for the purpose of raising and lowering the lever 113. For example, the support may be provided with an elongated slot 116 to receive a screw 117 that is screwed into the side bar 96.

Additional means for halting the operation of the machine is arranged at the outlet end of the can runway, and it comprises a pivoted plate 122 which controls an electric switch 123 that is arranged in the electric circuit of the motor. A spring 124 forming part of this switch, has sufficient strength to hold the plate 122 in its uppermost position, so long as only one can moves over the plate, but in case two or more cans should simultaneously arrive on the plate due to the failure of the operator to unload the machine fast enough, the combined weights of these cans will depress the plate 122 and break the circuit of the motor.

From the foregoing it is believed that the construction, operation and advantages of the invention may be readily understood by

those skilled in the art, and I am aware that changes may be made in the details disclosed, without departing from the spirit of the invention, as expressed in the claims.

5 What I claim and desire to secure by Letters Patent is:

1. In a can labeling machine, a can runway, a label supporting platform mounted adjacent to the runway, a post supporting the platform, a sprocket wheel carried by the post, a sprocket chain having one of its ends anchored to a fixed point and engaging said sprocket wheel, a second sprocket wheel over which the chain passes, a weight suspended from the other end of said sprocket chain, and means for rotating the second sprocket wheel.

2. In a can labeling machine, a can runway, a label supporting platform mounted adjacent to the runway, a post supporting the platform, a sprocket wheel carried by the post, a sprocket chain having one of its ends anchored to a fixed point and engaging said sprocket wheel, a second sprocket wheel over which the chain passes, a weight suspended from the other end of said sprocket chain, and means for intermittently turning the second sprocket wheel.

3. In a can labeling machine, a can runway, a label supporting platform mounted adjacent to the runway, a post supporting the platform, a sprocket wheel carried by the post, a sprocket chain having one of its ends anchored to a fixed point and engaging said sprocket wheel, a second sprocket wheel over which the chain passes, a weight suspended from the other end of said sprocket chain, and manually operated means for turning the second sprocket wheel.

4. In a can labeling machine, a can runway, a label supporting platform mounted adjacent to the runway, a post supporting the platform, a sprocket wheel carried by the post, a sprocket chain having one of its ends anchored to a fixed point and engaging said sprocket wheel, a second sprocket wheel over which the chain passes, a weight suspended from the other end of said sprocket chain, a gear movable with the second sprocket wheel, a second gear meshing with the first mentioned gear, and a hand operated shaft for rotating the second gear.

5. In a can labeling machine, a can runway, a label supporting platform mounted adjacent to the runway, a post supporting the platform, a sprocket wheel carried by the post, a sprocket chain having one of its ends anchored to a fixed point and engaging said sprocket wheel, a second sprocket wheel over which the chain passes, a weight suspended from the other end of said sprocket chain, and means including a clutch for intermittently turning the second sprocket wheel.

6. In a can labeling machine, a can runway, a label supporting platform mounted

adjacent to the runway, a post supporting the platform, a sprocket wheel carried by the post, a sprocket chain having one of its ends anchored to a fixed point and engaging said sprocket wheel, a second sprocket wheel over which the chain passes, a weight suspended from the other end of said sprocket chain, clutch teeth on the second sprocket wheel, a clutch collar having a tooth to engage the teeth of the second sprocket wheel, a hand operated shaft for operating said collar, and stop means for said shaft.

7. In a can labeling machine, a can runway, a label supporting platform mounted adjacent to the runway, a post supporting the platform, a sprocket wheel carried by the post, a sprocket chain having one of its ends anchored to a fixed point and engaging said sprocket wheel, a second sprocket wheel over which the chain passes, a weight suspended from the other end of said sprocket chain, and means actuated by a can rolling along the runway for operating said second sprocket wheel, said last mentioned means comprising a pawl, a ratchet wheel actuated by the pawl, a shaft, means including worm gearing for driving the shaft from the ratchet wheel, and means for clutching the shaft to the second sprocket wheel.

8. A can labeling machine comprising a runway along which cans may roll, a label supporting platform arranged below the runway, and means for elevating the platform step by step, said means including an electrically operated device for controlling the elevation of the platform when the latter reaches a predetermined elevation.

9. A can labeling machine including a runway along which cans may roll, a label supporting platform arranged below the runway, and means for intermittently elevating said platform, said means comprising a pawl actuated ratchet wheel, means for holding the pawl out of engagement with the ratchet wheel when the platform reaches a predetermined height, and spring means to force the pawl to engage the ratchet wheel.

10. A can labeling machine comprising a label supporting platform, a floating paste bar extending across the platform and adapted to be elevated by labels on the latter when the platform reaches a predetermined height, a mounting capable of adjustment upwardly and downwardly, a lever pivoted to said mounting and adapted to be moved by the paste bar when the latter reaches a predetermined height, and an electric switch actuated by said lever.

11. In a can labeling machine, a label supporting platform, bars arranged at opposite sides of the platform, a vertically adjustable bracket carried by one of the bars, and a spring finger carried by the bracket and adapted to bear upon the uppermost label of a pile of labels supported by the platform.

12. In a machine of the character described, a runway along which cans may roll, a vertically movable label supporting platform arranged below the runway, bars arranged at opposite sides of the platform, depending

guide posts carried by the bars, and means for moving said bars toward or away from one another.

13. In a machine of the character described, a runway along which cans may roll, a vertically movable label supporting platform arranged below the runway, bars arranged at opposite sides of the platform, depending guide posts carried by the bars, and means for moving said bars toward or away from one another, said last mentioned means including hand operated screws, shiftable blocks having threaded bores engaged by the screws, and slot and pin connections joining the blocks to the bars.

14. A can labeling machine comprising a label supporting platform, a paste bar extending across said platform, a can runway arranged above the platform and paste bar, means actuated by cans rolling along the runway for forcing adhesive to said bar, said last mentioned means including a pump, and manually operated means for driving the pump.

15. A can labeling machine comprising a runway, along which cans are adapted to roll, a pivotally mounted plate interposed in the runway, a spring for holding one end of said plate in a raised position as long as cans pass only singly over the plate, and an electric switch operated by the plate when more than one can rolls simultaneously over the plate.

16. In a can labeling machine, a label supporting elevator, an electrically operated device for controlling the elevation of said elevator, an electric switch, an open electric circuit in which the switch and said device are interposed, and means actuated by the elevator when the latter reaches a predetermined height for closing said switch to actuate said device.

17. In a can labeling machine, a label supporting elevator, an electrically operated device for controlling the elevation of said elevator, an electric switch, an open electric circuit in which the switch and said device are interposed, and means actuated by the elevator when the latter reaches a predetermined height for closing said switch to actuate said device, said electrically operated device comprising a solenoid.

18. In a can labeling machine, a label supporting elevator, an electrically operated device for controlling the elevation of said elevator, an electric switch, an open electric circuit in which the switch and said device are interposed, and means actuated by the elevator when the latter reaches a predetermined height for closing said switch to actuate said device, the last mentioned means comprising

a paste bar extending across the elevator for applying adhesive to the labels.

In testimony whereof, I have signed this specification.

ALBERT H. KYLER. 70

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