J. J. GAYNOR.

BOTTLE LABELING MACHINE.

APPLICATION FILED JULY 8, 1915.

1,174,847.

Patented Mar. 7, 1916.

6 SHEETS—SHEET 1.

Fig. 1.

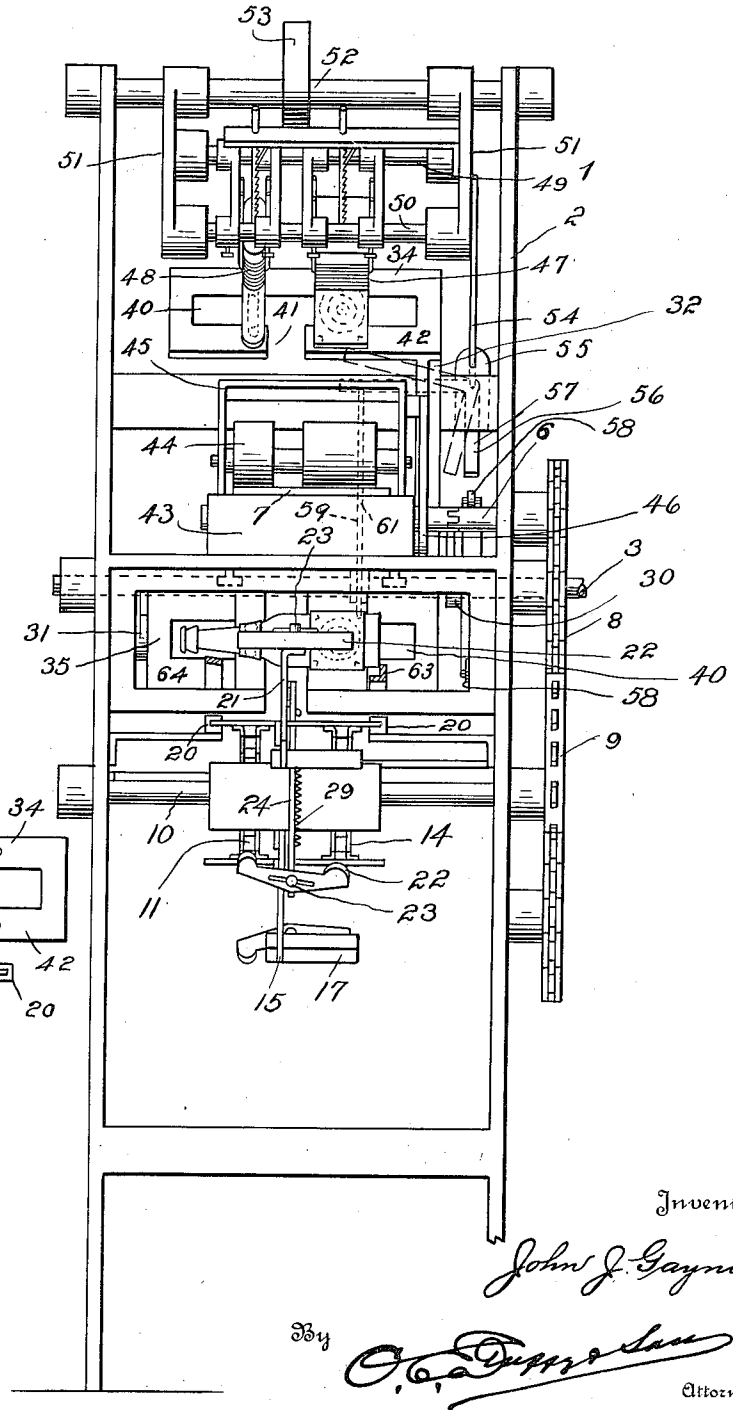
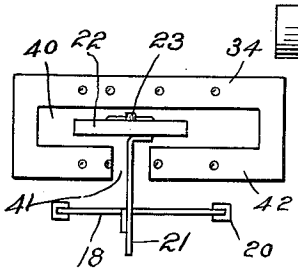


Fig. 7.



Inventor

John J. Gaynor,

By O. G. Dyer & Son

Attorney

J. J. GAYNOR.

BOTTLE LABELING MACHINE.

APPLICATION FILED JULY 8, 1915.

1,174,847.

Patented Mar. 7, 1916.

6 SHEETS—SHEET 2.

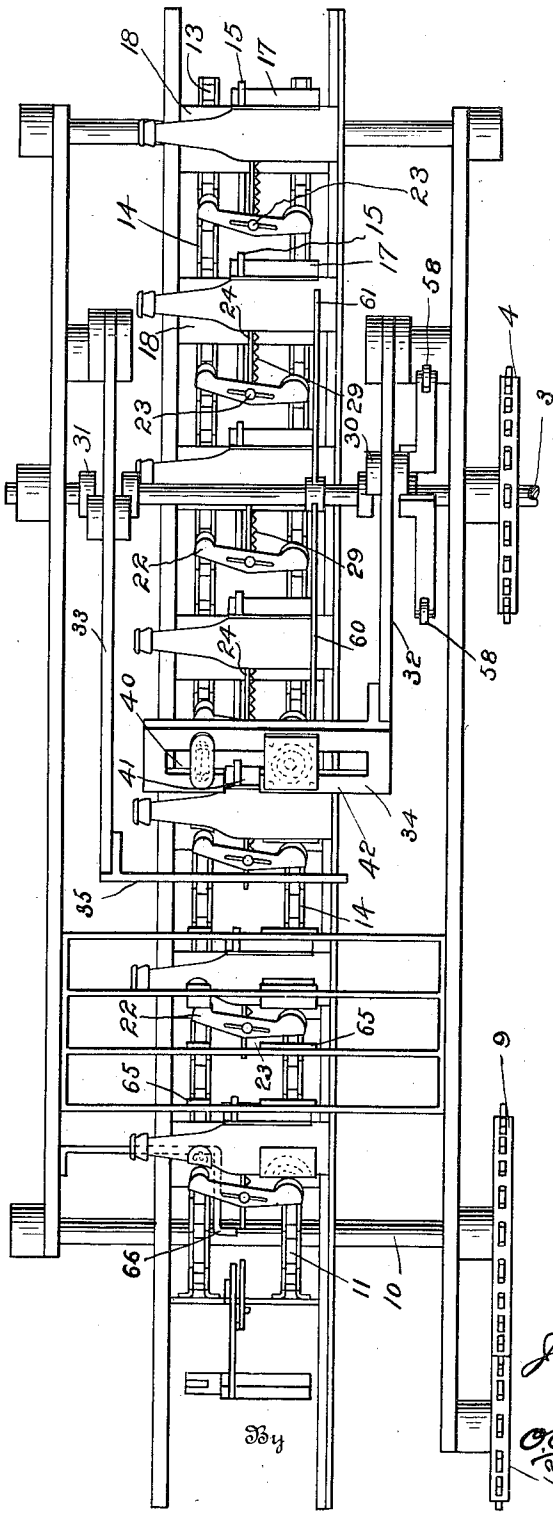


FIG. 2.

Inventor

John J. Gaynor

By

Attorneys

J. J. GAYNOR.

BOTTLE LABELING MACHINE

APPLICATION FILED JULY 8, 1915.

1,174,847.

Patented Mar. 7, 1916.

6 SHEETS—SHEET 3.

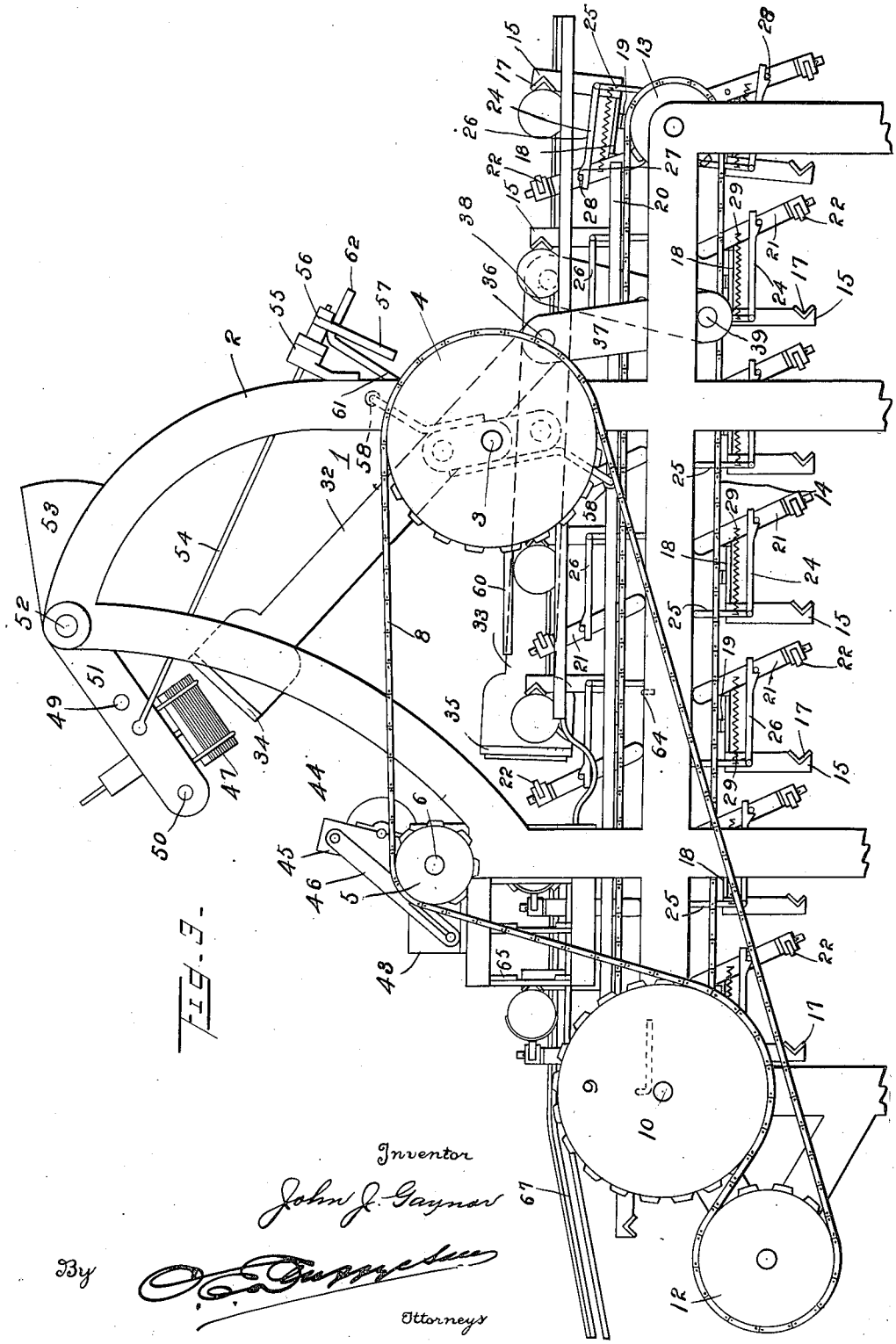


Fig. 3.

Inventor

John J. Gaynor

By

Attorneys

J. J. GAYNOR.

BOTTLE LABELING MACHINE.

APPLICATION FILED JULY 8, 1915.

1,174,847.

Patented Mar. 7, 1916.

6 SHEETS—SHEET 4.

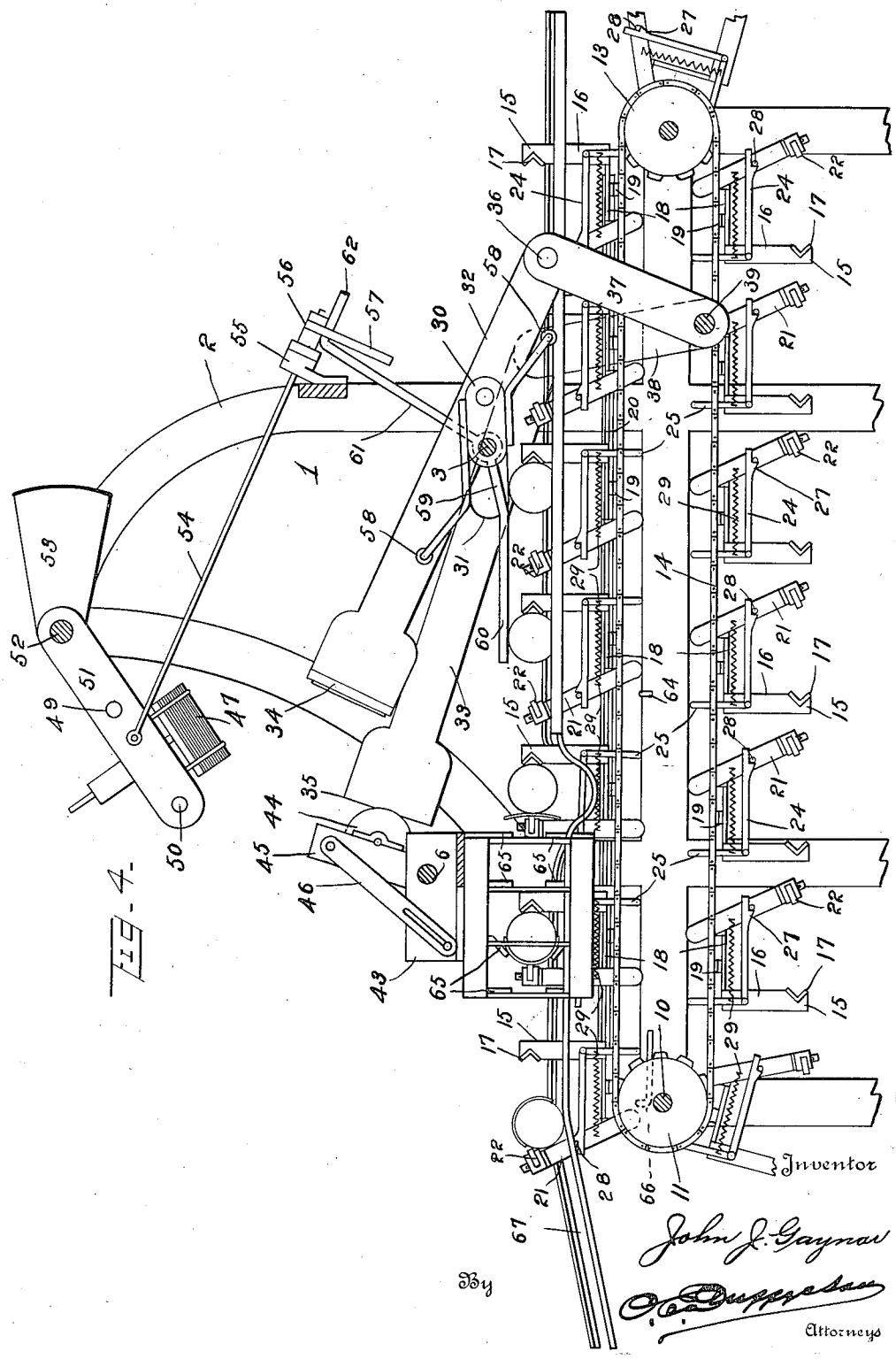


Fig. 4.

Inventor

John J. Gaynor

By

Attorneys

J. J. GAYNOR.

BOTTLE LABELING MACHINE.

APPLICATION FILED JULY 8, 1915.

1,174,847.

Patented Mar. 7, 1916.

6 SHEETS—SHEET 5.

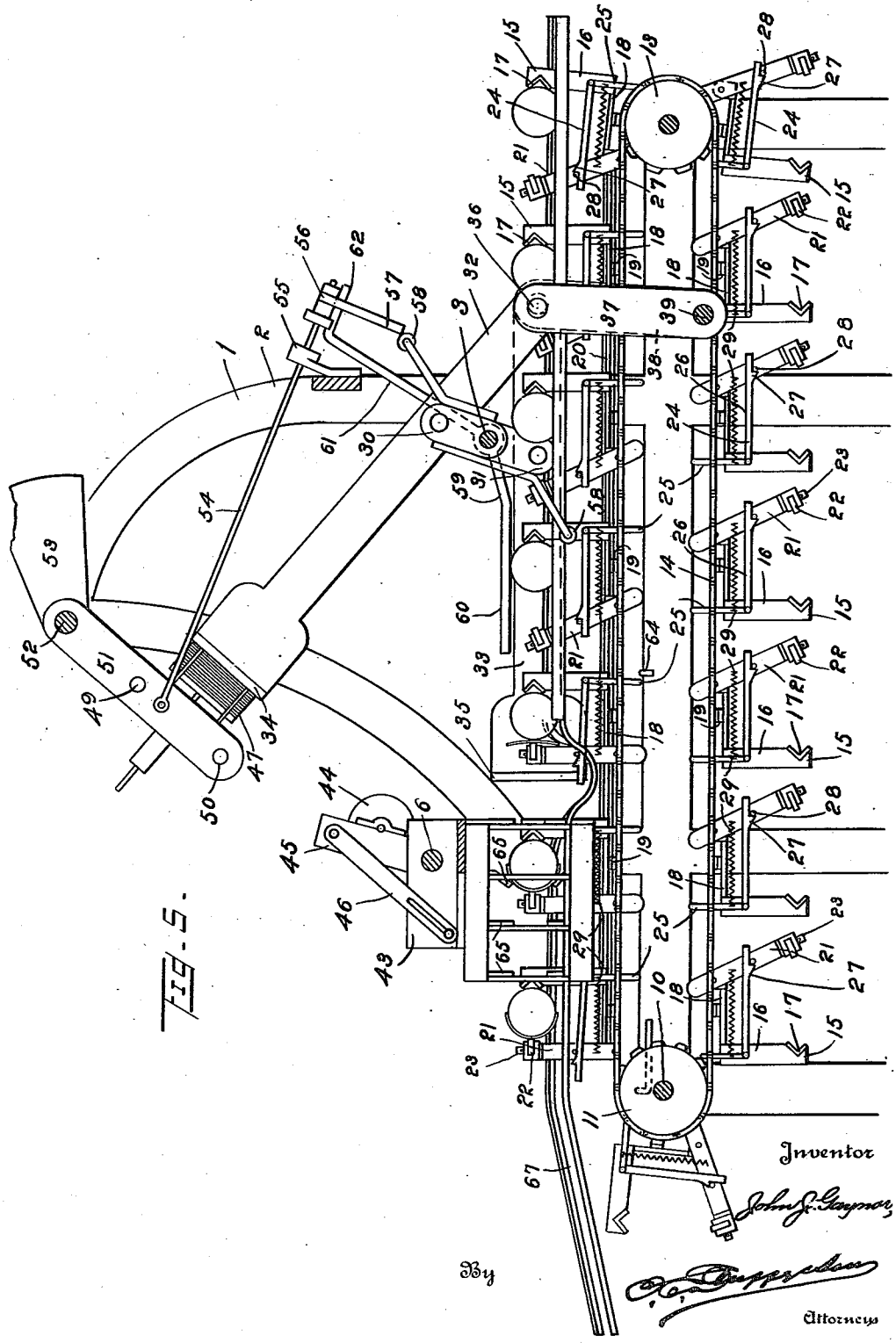


Fig. 5.

Inventor

John J. Gaynor,

By

Attorneys

J. J. GAYNOR.

BOTTLE LABELING MACHINE.

APPLICATION FILED JULY 8, 1915.

1,174,847.

Patented Mar. 7, 1916.

6 SHEETS—SHEET 6.

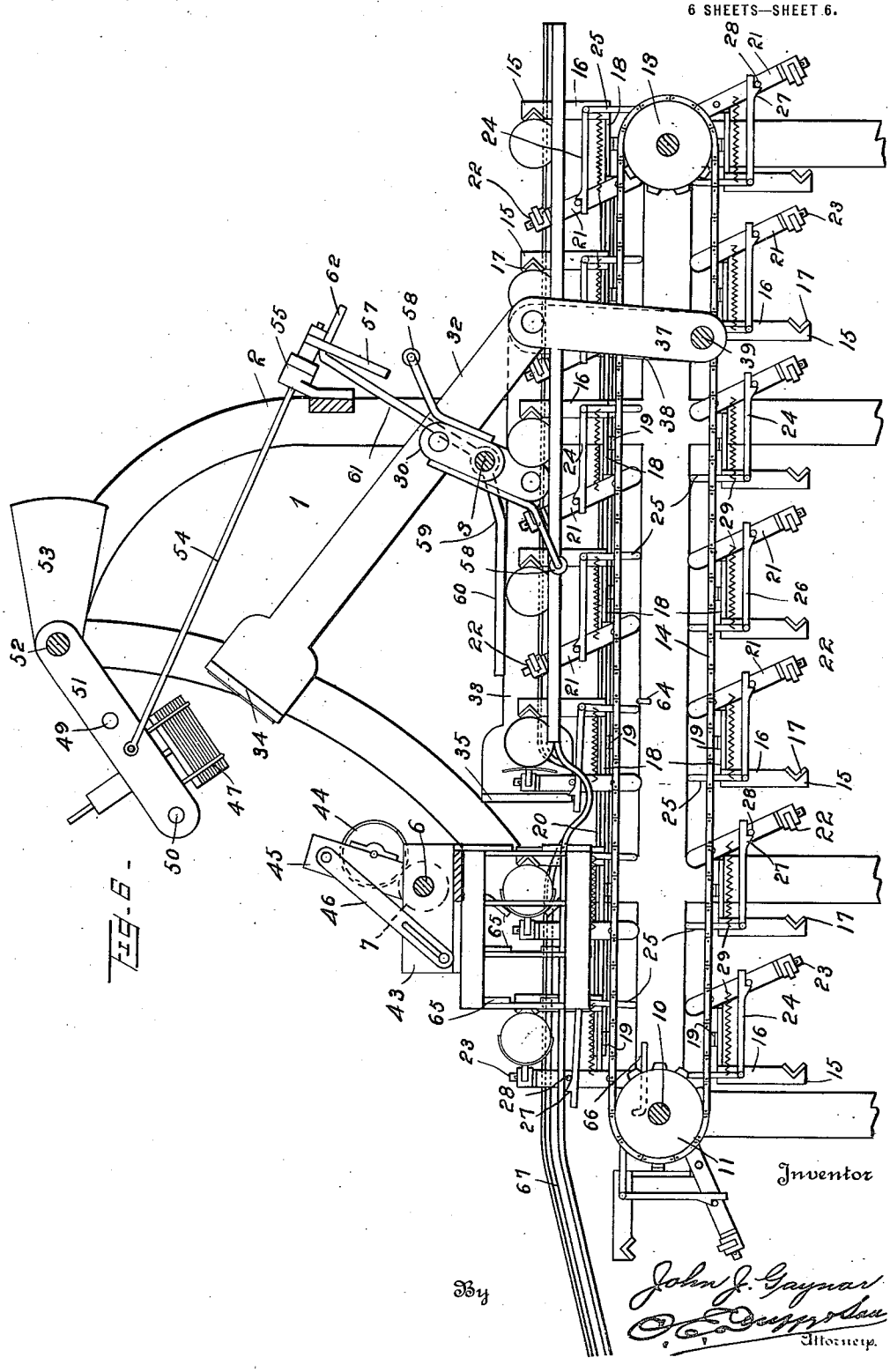


Fig. 6.

Inventor

John J. Gaynor

By

Attorneys

UNITED STATES PATENT OFFICE.

JOHN J. GAYNOR, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE L. & G. MANUFACTURING CO., OF INDIANAPOLIS, INDIANA, A CORPORATION.

BOTTLE-LABELING MACHINE.

1,174,847. Specification of Letters Patent. Patented Mar. 7, 1916.

Application filed July 8, 1915. Serial No. 38,699.

To all whom it may concern:

Be it known that I, JOHN J. GAYNOR, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Bottle-Labeling Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to bottle labeling machines and has for its object to provide a high speed machine, the parts being so constructed and arranged that one or more labels can be affixed to bottles successively and at a high rate of speed, so that it is possible to apply and affix labels to bottles more rapidly and with greater precision than could heretofore be accomplished.

A further object of the invention is to provide a bottle labeling machine in which cams have been eliminated so that the major elements of the machine are rotary.

A further object of the invention is to provide a bottle labeling machine which is practically noiseless in operation, simple in its construction, cheap and easy to manufacture, strong, durable and efficient.

With these and other objects in view the invention consists in the novel construction and arrangement of the label carriers, and in the novel construction and arrangement for operating the same.

The invention further consists in the novel construction and arrangement of the bottle carriers and in the novel construction and arrangement of the label affixing fingers.

The invention further consists in the novel construction and arrangement of the endless chain for supporting and conveying the bottle holders and the label affixing fingers to carry the same in a straight line through the label wipers.

The invention further consists in certain other novel details of construction and combinations of parts, all of which will be first fully described and afterward specifically pointed out in the appended claims.

Referring to the accompanying drawings, Figure 1 is a front elevation of a bottle labeling machine constructed in accordance with this invention. Fig. 2 is a top plan view of the same. Fig. 3 is a side elevation of the bottle labeling machine. Fig. 4 is a vertical longitudinal sectional view, illustrating particularly one of the label carriers with label thereon passing downwardly to the label affixing finger, and the other of the label carriers in the act of receiving paste from the paste distributing roll during its upward passage to the label box or boxes. Fig. 5 is a vertical longitudinal sectional view through the machine, illustrating particularly the position of one of the label carriers at the instant its label has been engaged and removed therefrom by one of the label affixing fingers, and illustrating the other of the label carriers in the act of receiving a label or labels from the label box or boxes. Fig. 6 is a similar view, illustrating particularly the position of one of the label carriers at the instant it has received its label or labels from the label box or boxes, and Fig. 7 is a fragmentary elevation, illustrating one of the label carriers and one of the label affixing fingers.

Like numerals of reference indicate the same parts throughout the several figures, in which—

1 indicates the bottle labeling machine, including a suitable frame-work 2.

3 indicates the drive shaft journaled transversely of the machine as shown in the several figures upon which is mounted a large sprocket 4 to which is chained a smaller sprocket wheel 5 mounted on the shaft 6 of the paste supplying roll 7, the chain 8 passing to a large sprocket 9 mounted on a shaft 10 carrying the bottle conveying chain sprockets 11. From the large sprocket the chain 8 passes over an idler sprocket 12 in the manner as shown in Fig. 3.

Mounted on the opposite end of the machine are two sprockets 13 over which the endless bottle conveying chain 14 passes. Referring particularly to the chain 14 it will be seen that it carries a plurality of bottle carriers 15 which include a central vertical post 16 having at the top thereof a transverse U-shaped bottle engaging and holding member 17, the said post 16 being mounted on a flat base 18 which in turn is connected to the chain or more properly chains 14 by a bracket 19, it being understood that the chain 14 is duplicated for each

pair of sprockets 11 and 13. Arranged in the manner as shown in Fig. 3 and just above each of the chains 14 are two horizontal and longitudinal gibs 20, the same also being illustrated in Fig. 1, said gibs being arranged to receive the said platforms 18 of the bottle carriers in order to properly guide the same and to hold the carriers in a rigid position during their passage through the machine. Pivotally mounted at the rear of each of the platforms 18 is a central post 21 which carries the label affixing finger 22, said label affixing finger 22 being pivoted to the post 21 at 23 in the manner as shown in Fig. 1, so that said finger 22 is free to conform to bottles of varying diameters. Pivoted to the post 16 of each of the bottle carriers 15 is an L-shaped trip lever 24 which includes a depending arm 25 and a normally horizontal arm 26 having thereon a stop 27, and mounted on the post 21 of each of the label affixing fingers 22 is a pin 28 adapted to be engaged by the stop 27 for the purpose of holding the label affixing finger 22 in the position illustrated in Fig. 3, while a spring 29 connected to each of the posts 21 of the label affixing fingers 22 passes to and is connected to the depending arm 25 of each of the trip levers 24.

Referring now to the label carriers it will be seen that the drive shaft 3 has mounted thereon at each side of the machine two oppositely disposed cranks 30 and 31, to each of which cranks is journaled on each side of the machine the arms 32 and 33 of the label carriers 34 and 35. It will also be seen that said arms 32 and 33 are pivoted at 36 to duplicate links 37 and 38, said links being pivoted at 39 on opposite sides of the machine.

Referring now to Fig. 2 it will be seen that the label carrier 34 is mounted on the arm 32 and extends transversely of the machine, while the label carrier 35 is mounted on the arm 33 and extends transversely of the machine, so that said label carriers 34 and 35 may freely pass each other in opposite directions without interference. It will be seen by reference to the several figures and particularly to Fig. 7 that each of the label carriers 34 and 35 is provided with an elongated longitudinal opening 40 and a substantially centrally disposed cut or opening 41 in the lower bar 42, for a purpose which will be hereinafter fully described.

Mounted as shown in the drawings is the paste box 43 in which is disposed the lower paste supply roller 7 which is in rolling contact with the paste distributing roll 44 mounted on the arms 45 swung from the paste supplying roll shaft 6. A slotted link 46 passing from the box 43 to the arms 45 retains the distributing roll 44 in its proper position and at the same time provides for a resilient rolling contact of the distributing roll 44 with the faces of the label carriers 34 and 35.

Referring now to the label boxes 47 and 48 it will be seen from Fig. 1 that the same are mounted on transverse rods 49 and 50 to provide proper transverse adjustment and positioning of the said two boxes, said rods 49 and 50 being mounted on arms 51 carried on a shaft 52 to which is also fixed the counterpoise 53, so that the label boxes will be normally maintained in the position shown in Fig. 4. Connected to one of the arms 51 is a link 54 passing through a guide 55 fixed to the frame of the machine, while an L-shaped trip lever 56 is pivotally mounted on the link 54 (shown in dotted lines in Fig. 1), the depending arm 57 of the trip lever 56 being in the path of rotation of the rollers 58 oppositely disposed on the crank 30, so that upon rotation of the crank 30 the rollers 50 connected thereto will successively engage the depending arm 57 of the trip lever 56 in the manner as shown in Fig. 5 to actuate the label boxes 47 and 48 and bring them in engagement with the label carriers in the manner as shown in Fig. 5.

In order to guard against the application of a label or labels to the label carrier or carriers should there be no bottle in position to receive the same, I provide a lever 59 pivoted or fulcrumed on the drive shaft 3, said lever including a substantially horizontal arm 60 and an upwardly extending arm 61 having its end 62 bent forwardly to engage the substantially horizontal arm of the L-shaped trip lever 56 in the manner as shown in Fig. 1, the substantially horizontal arm 60 of the lever 59 being weighted so that it will engage the bottles as they successively pass thereunder and so that said arm will swing downwardly on its pivot unless supported in its normal position by a bottle about to receive its label. Should there be no bottle under the arm 6 about to receive its label or labels the arm 60 of the lever 59 will swing downwardly on its pivot, thus raising its arm 60 and bent end 62 to cause the substantially horizontal arm of the L-shaped trip lever 56 to be raised, which movement swings the depending arm 57 of said trip lever 56 into position shown in dotted lines in Fig. 1, thus carrying said depending arm 57 out of the path of movement of the rollers 58 so that the label box or boxes 47 and 48 will not be brought into position to deposit a label or labels on the label carrier. By this construction I prevent the depositing of a label on the label carrier automatically whenever there is no bottle in position to receive the same.

Having thus described the several parts of this invention, its operation is as follows: The bottles are placed in the bottle holders 15 in position shown in Fig. 3 and in order

to properly guide the bottles, I provide on one side of the bottle holders a longitudinal L-shaped guide rail 63 (Fig. 1) and on the other side a longitudinal rail 64, so that the bottles when placed in the machine are arranged with their bottoms in engagement with the vertical wall of the L-shaped rail 63. As the bottle conveying chain 14 carries the bottles into the machine the label carriers 34 and 35 successively come into position shown in Fig. 3. As the innermost bottle is about to receive its label the label carrier 35 with its label thereon is carried into a substantially horizontal position between the bottle to receive its label or labels and the label affixing finger 22. When in this position the depending arm 25 of the L-shaped trip lever 24 comes in contact with a stop 64 arranged in the path of said depending arms 25 which causes the trip lever 24 to rock on its pivot and carry its stop 27 out of engagement with the pin 28 on the post 21 of the label affixing finger 22. This movement of the trip lever 24 allows the spring 29 on the post 21 to throw said post 21 on its pivot into position shown in Fig. 4, which movement causes the label affixing finger 22 to engage the label or labels on the label carrier 35 and carry the same through the elongated opening 40 in the label carrier and deposit the label or labels on the bottle, the post 21 of the label affixing finger passing through the substantially central cut or opening 41 in the lower bar 42 of the label carrier. The label being thus removed from the label carrier and applied to the bottle is now held between the label affixing finger and the transverse U-shaped arm 17 of the bottle holder 15 and in this position is passed successively through a plurality of label wipers 65 which wipe and smooth out the label or labels on the bottles in the manner as shown in Fig. 4. As the bottle progresses through the machine the lower end of the post 21 of the bottle affixing finger 22 comes in contact with a stop 66 causing said post 21 to be rocked on its pivot into position shown in Fig. 4, thus releasing the bottle from the label affixing finger and bottle holder and allowing same to be delivered from the machine preferably onto an inclined chute 67. This rocking of the post 21 causes the spring 29 to bring the stop 27 into engagement with the pin 28 on the post 21 to hold said post and label affixing finger 22 into position shown in Fig. 4, the said post 21 and label affixing finger 22 being so maintained in position during its return passage to the opposite end of the machine to receive another bottle and continues to maintain this position until the depending arm 25 of the trip lever 24 again comes in contact with the stop 64 which rocks the trip lever 24 and allows the post 21 of the label affixing finger 22 to engage a label on the label carrier and affix same to a bottle, it being understood that the above operation is repeated by each of the label affixing fingers so long as there are bottles in the machine.

As the label is removed from one of the label carriers it passes up into position shown in Fig. 4, effecting a rolling contact with the paste distributing roller 44 from which it is supplied with a proper amount of paste. From the paste roller 44 it passes up into position shown in Fig. 5 in which position the label boxes 47 and 48 are brought into position shown in said figure to deposit a label or labels on the label carrier, and from the label boxes the label carrier passes downwardly into position to be met by the label affixing finger 22 and to have its label or labels removed therefrom and affixed to a bottle in the manner as has been heretofore described.

As will appear from Fig. 5 one of the label carriers is having its label or labels removed therefrom and applied to a bottle by one of the label affixing fingers 22, while the other of said label carriers is receiving its label or labels from the label boxes 47 and 48. While from Fig. 4 it will be seen that one of the label carriers is receiving its paste from the paste roll 44 on its upward movement to the label boxes, while the other of the label carriers with its label or labels thereon is passing downwardly to be met by one of the label affixing fingers 22. It will thus be seen that by means of this construction a continuous action is effected, so that while one of the label carriers is having its label removed and affixed to a bottle, the other of the label carriers is receiving its label or labels to be removed therefrom and affixed to the next or succeeding bottle. It will therefore be seen that a machine constructed in accordance with this invention can be operated at a high rate of speed so that a great number of bottles can be successfully and efficiently labeled with one or two labels in a short period of time.

Having thus fully described the invention it is apparent that the same is susceptible to changes in construction and arrangement of the parts, and I consider myself clearly entitled to all such modifications as fall within the limit and scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is—

1. A bottle labeling machine, including a plurality of bottle holders, a pair of label carriers, an arm mounting each of said label carriers, oppositely disposed cranks journaling said arms, a link to which each arm is pivoted, a rotatable drive shaft for rotating said cranks to impart to said label carriers a substantially elliptical movement, a label affixing finger associated with each of said bottle holders, each of said bottle holders including a transverse element for

engagement with the bottle, a vertical post mounting said element and a flat base to which base the said label affixing finger is pivoted, an endless chain carrying said bottle holder and label affixing fingers, a pair of longitudinal gibs to receive successively the platforms of said bottle holders, a trip element pivoted to each of said bottle holders for interlocking engagement with its label affixing finger, a stop in the path of movement of each of said trip elements to engage the same to release said label affixing finger to remove a label from one of the label carriers and affix same to a bottle, a plurality of label wipers arranged in the path of movement of said label affixing fingers and said bottle carriers and a trip arranged in the path of movement of each of the label affixing fingers to swing the same on its pivot to release a bottle from the said finger and to effect an interlocking engagement of said label affixing finger and its trip element to hold said label affixing finger in its normal extended position, means for supplying paste to each of the label carriers and means for applying a label to each of the label carriers substantially as described.

2. A bottle labeling machine, including a pair of label carriers, an arm mounting each label carriers, a shaft, oppositely disposed cranks thereon for journaling said arms to impart thereto a substantially elliptical movement, means for supplying paste to each of said label carriers, means for supplying a label to each of said label carriers, an endless chain, a plurality of bottle holders arranged thereon, a plurality of label affixing fingers pivoted in association with said bottle carriers, means for driving said chain to move said bottle holders and label affixing fingers synchronously with said label carriers, means for moving successively each of said label affixing fingers to remove a label from one of the label carriers and to affix same to a bottle, means for successively wiping the labels so affixed and means for moving successively each of said label affixing fingers to release a bottle therefrom.

3. A bottle labeling machine, including a label carrier, a crank actuated arm supporting the carrier to move the same, means for applying paste to the carrier, means for applying a label to the carrier, means for removing a label from said label carrier and affixing same to a bottle, a plurality, of label wipers and means for conveying a bottle with label thereon through said plurality of wipers in a straight line.

4. A bottle labeling machine, including a label carrier, a crank actuated arm supporting the carrier to move the same, means for applying paste to the carrier, means for applying a label to the carrier, means for removing a label from said label carrier and to apply same to a bottle, a label wiper and means for conveying a bottle with label thereon through said label wiper in a straight line.

5. A bottle labeling machine, including a pair of label carriers, means for imparting to each label carrier a substantially elliptical movement, means for applying paste to each of said label carriers, means for applying a label to each of said label carriers, a plurality of bottle holders, means for moving the same synchronously with said label carriers, means for removing alternately a label from said label carriers and for affixing same to a bottle, and means independent of the bottle holder moving means actuated by the bottles in the bottle holders to control said means for affixing a label to the label carriers and means for wiping the label affixed to a bottle.

6. A bottle labeling machine, including a label carrier, means for imparting a substantially elliptical movement thereto, means for supplying paste to the label carrier, means for supplying a label to the label carrier, means for holding a bottle, means associated therewith for removing a label from said label carrier and for affixing same to a bottle, and means independent of the bottle holding moving means actuated by a bottle in said bottle holder for controlling said means for applying a label to said label carrier.

7. A bottle labeling machine, including a label carrier provided with an elongated longitudinal opening and a substantially central cut or opening communicating with one longitudinal edge of the label carrier and the said elongated longitudinal opening, means for holding a bottle, a label affixing finger including a central post and an elongated label engaging element, and means for moving said label affixing finger through the said openings in said label carrier to remove a label therefrom and to affix same to a bottle.

8. A bottle labeling machine, including a label carrier having an elongated longitudinal opening and a substantially central cut or opening disposed between said elongated longitudinal opening and one of the longitudinal edges of the label carrier, a label affixing finger including a post and a transverse element thereon, and means for moving said label affixing finger through said openings in said label carrier to remove a label therefrom to affix same to a bottle.

9. A bottle labeling machine, including a label carrier, means for applying a label thereto, said label carrier being provided with an elongated longitudinal opening and a substantially central opening extending from one of the longitudinal edges of the label carrier to said elongated longitudinal opening therein, means for removing a label from said label carrier and for affixing same

to a bottle and means for moving said label removing means through the said openings in the said label carrier.

10. A bottle labeling machine, including a label carrier, means for applying paste thereto, means for applying a label thereto, said label carrier being provided with an elongated longitudinal opening and provided with a substantially central opening extending from one of the longitudinal edges of said carrier to the said elongated longitudinal opening therein, means for removing a label from said label carrier and for affixing same to a bottle and means for effecting a relative movement between said label carrier and said label removing means, to cause said label removing means to pass through the said openings in said label carrier.

11. A bottle labeling machine, including a pair of perforate label carriers, means for moving the same in an orbit successively, means for applying paste thereto, a label box mounted adjacent the path of movement of said label carriers, means controlled by the movement of said label carriers for moving said label box to deposit a label on the label carriers successively, means for removing a label from each of the label carriers and applying same to a bottle, means for wiping a label so applied and means actuated by a bottle about to receive a label for controlling the movement of said label box.

12. A bottle labeling machine, including a pair of label carriers, a pair of oppositely mounted crank actuated arms supporting the carriers to move the same in an orbit successively, means for applying paste thereto, a label box mounted adjacent the path of movement of said label carriers, means controlled by the movement of said label carriers for moving said label box to deposit a label on the label carriers successively, means for removing a label from each of the label carriers and applying same to a bottle and means for wiping a label so applied.

13. A bottle labeling machine, including a pair of label carriers, a pair of crank actuated arms supporting the carriers to move the same in an orbit successively, means for applying paste thereto, means for applying a label thereto, means for removing a label from each label carrier alternately and for applying same to a bottle, and means for wiping a label so applied.

14. A bottle labeling machine, including a pair of label carriers, a pair of crank actuated arms supporting the carriers to move the same in an orbit successively, means for applying a label to each label carrier alternately, means for removing a label from each label carrier alternately and applying same to bottles successively, a plurality of label wipers and means for conveying a bottle with label thereon through said plurality of label wipers successively in a straight line.

15. A bottle labeling machine, including a pair of label carriers, a pair of arms supporting said carriers to move the same in an orbit successively, means for applying a label to each label carrier alternately, means for removing a label from each label carrier alternately and for applying same to bottles successively, a bottle wiper and means for conveying a bottle with label thereon through said label wiper in a straight line.

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

JOHN J. GAYNOR.

Witnesses:
C. HUGH DUFFY,
M. E. SHAW.