Dec. 25, 1934. J. O. FENNER ET AL 1,985,774

LABELING DEVICE

Filed Dec. 12, 1932 5 Sheets-Sheet 1

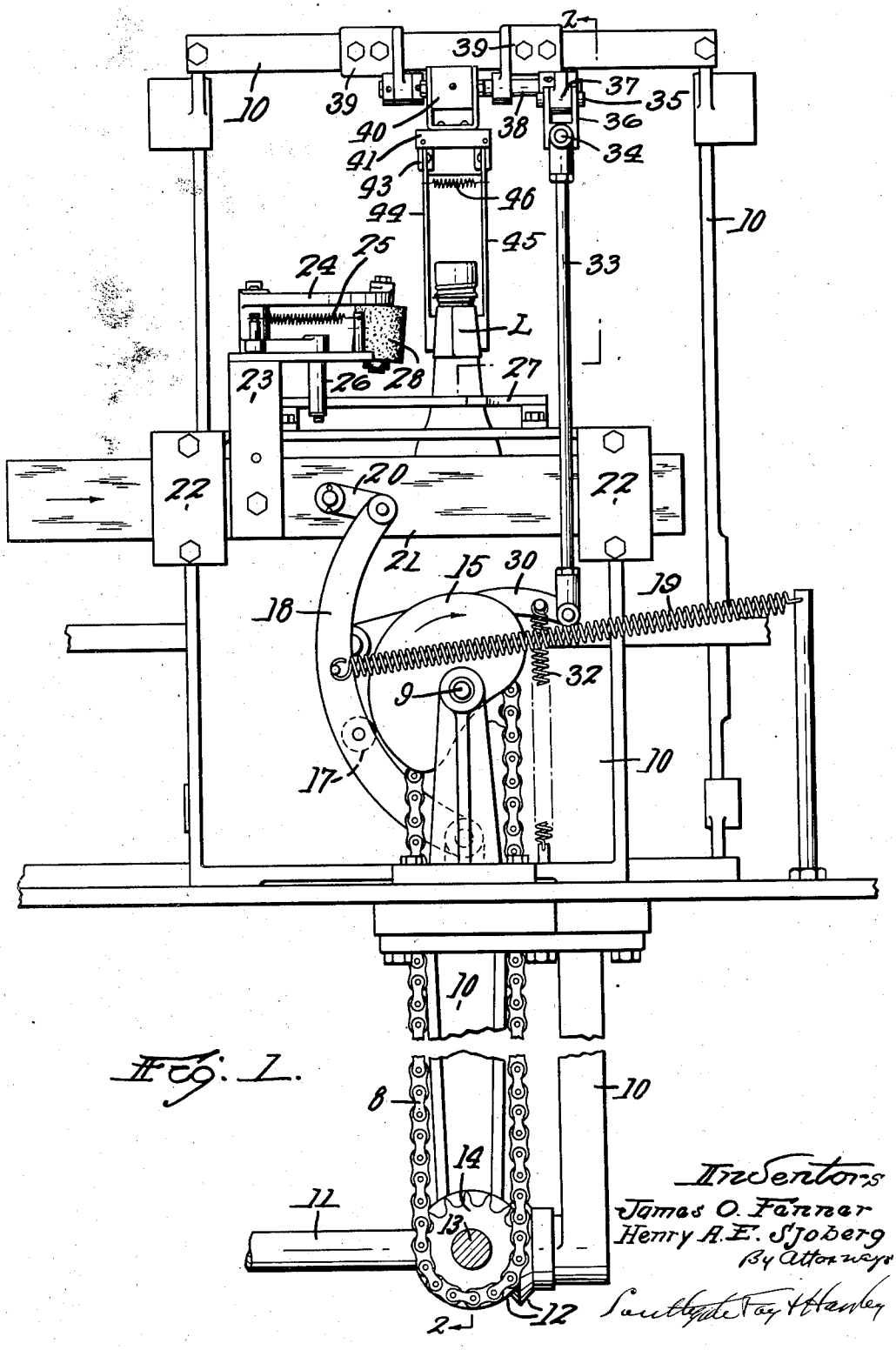


Fig. 1.

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LABELING DEVICE

Filed Dec. 12, 1932 5 Sheets-Sheet 2

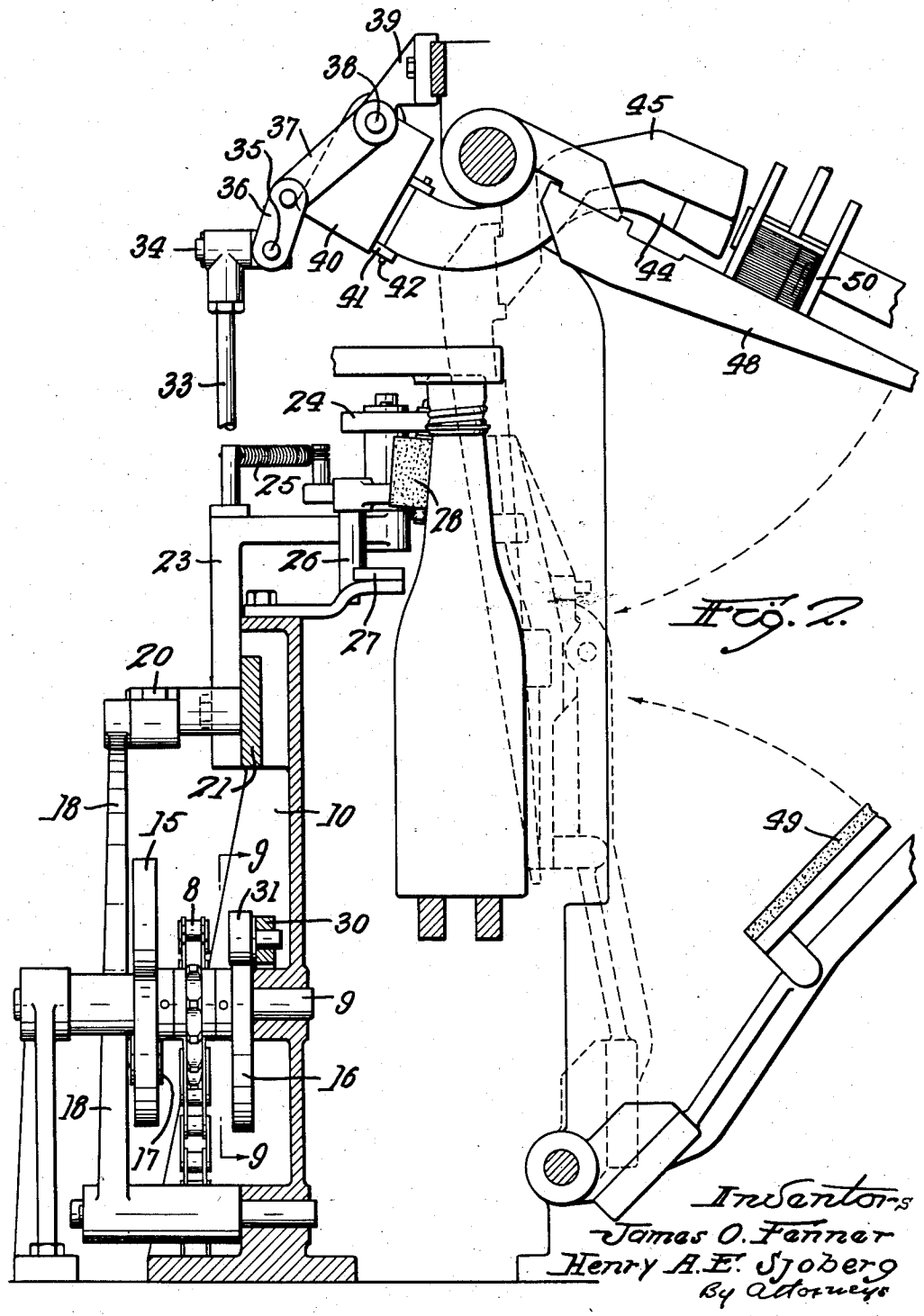


Fig. 2.

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LABELING DEVICE

Filed Dec. 12, 1932 5 Sheets-Sheet 3

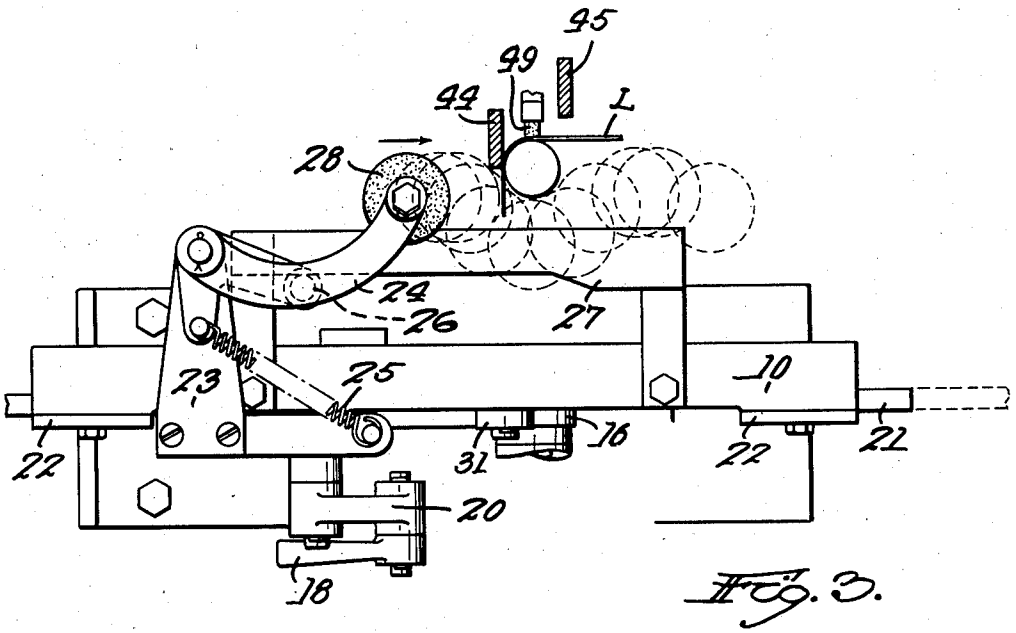


Fig. 3.

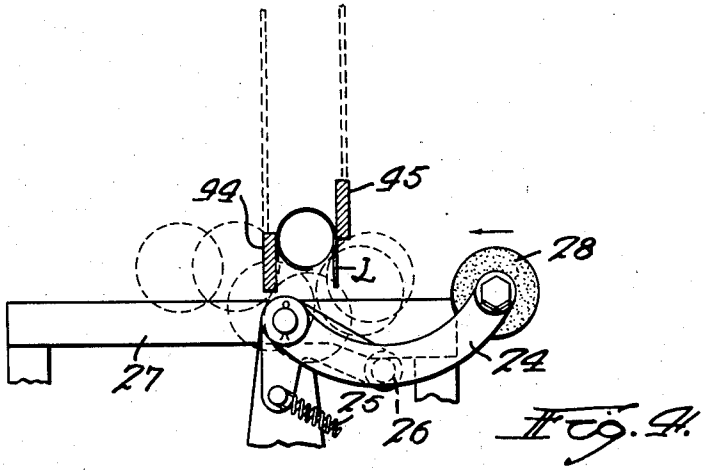


Fig. 4.

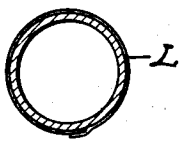


Fig. 5.

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LABELING DEVICE

Filed Dec. 12, 1932 5 Sheets-Sheet 4

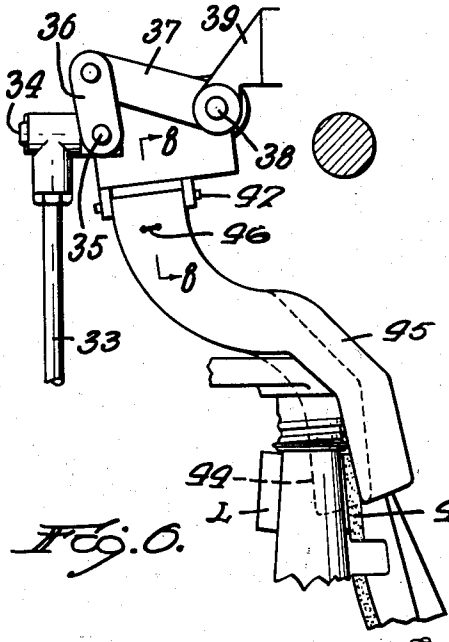


Fig. 6.

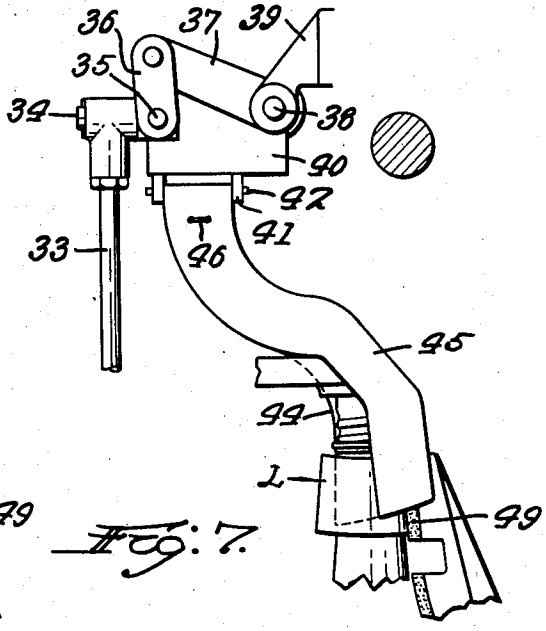


Fig. 7.

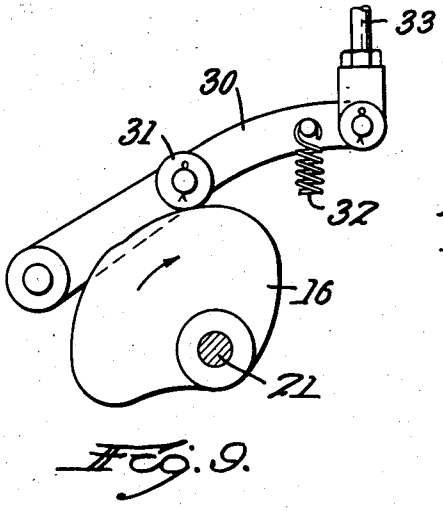


Fig. 9.

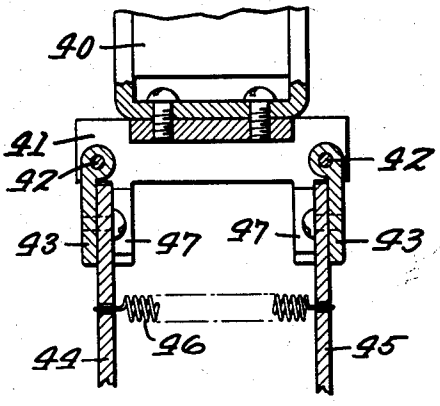


Fig. 8.

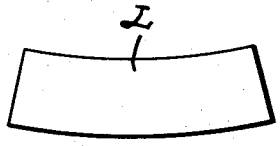


Fig. 10.

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LABELING DEVICE

Filed Dec. 12, 1932 5 Sheets-Sheet 5

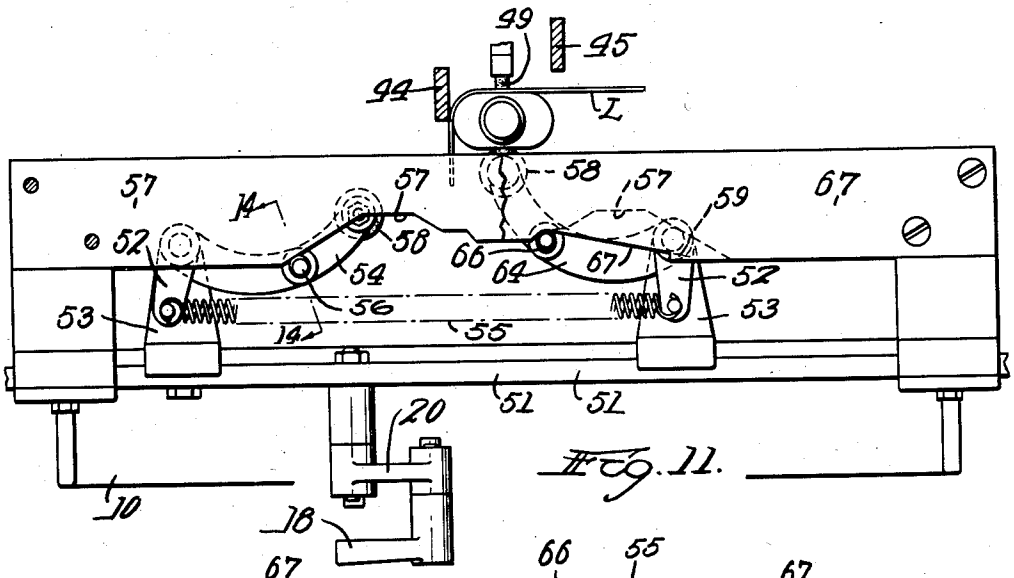


Fig. 11.

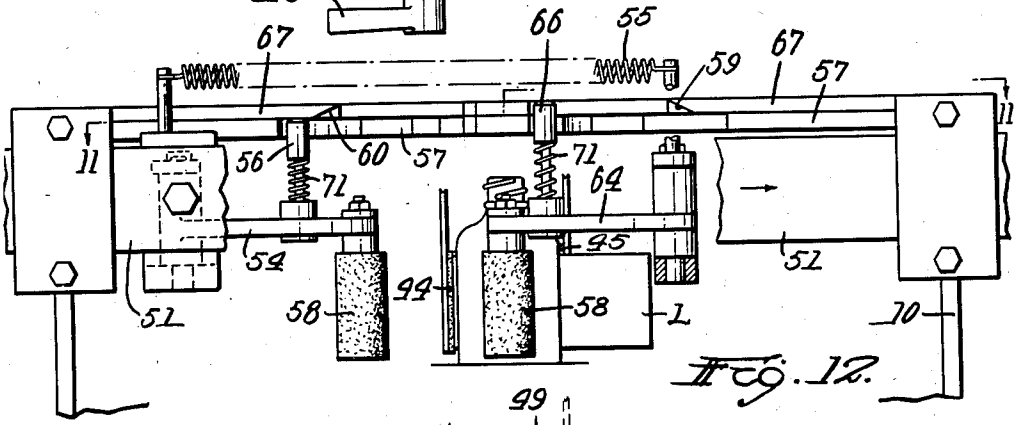


Fig. 12.

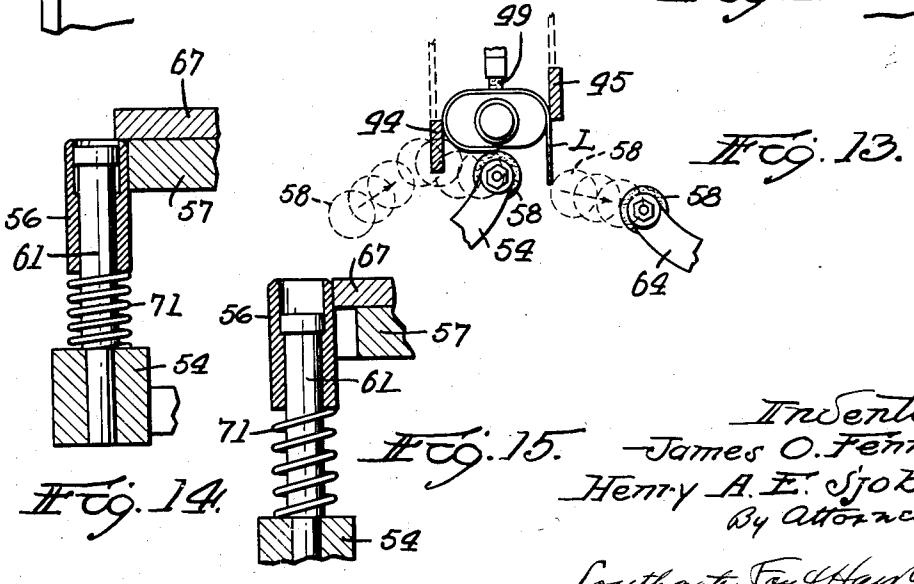


Fig. 13.

Fig. 14.

Fig. 15.

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Patented Dec. 25, 1934 1,985,774

UNITED STATES PATENT OFFICE

1,985,774

LABELING DEVICE

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Application December 12, 1932, Serial No. 646,840

21 Claims. (Cl. 216—54)

This invention relates to the label wiping mechanism of a machine for labeling bottles and other articles.

The principal objects of this invention are to provide for the application of a label to an article by first bringing it into contact with the article to which it is to be applied, moving a side label placing member along the label on one side, moving a transverse wiper over that end of the label to lay it down on the article, moving a second side label placing member in the same direction as the first one to bring the other end of the label around the article to a certain point and finally bringing the same or another transverse wiper back to lay down the last-named end of the label, either over the first named end or in registration therewith; to provide simple and effective means for operating the several devices for carrying out the above mentioned operation; to provide means for controlling them, and to provide an improved method of wiping a label around an article.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is a front elevation of a straight line labeling machine with a preferred embodiment of this invention applied thereto and showing it in position after the label is applied and the transverse wiper drawn back;

Fig. 2 is a sectional view of the same taken on the line 2—2 of Fig. 1;

Fig. 3 is a plan of the wiping elements themselves showing the first part of the method of operation of the transverse wiper;

Fig. 4 is a similar view showing the parts after more of the operation is completed;

Fig. 5 is a sectional view of the article to be labeled showing the label thereon;

Fig. 6 is a side view of the two side wiping devices shown in the position in which one of them has acted to wipe on one end of the label;

Fig. 7 is a similar view showing the position of the parts after both of them have acted;

Fig. 8 is a sectional view of the same on the line 8—8 of Fig. 6;

Fig. 9 is a sectional view on the line 9—9 of Fig. 2;

Fig. 10 is a view of the label used in this particular operation laid out flat;

Fig. 11 is a horizontal sectional view on the broken line 11—11 of Fig. 12 showing a modification in the starting position;

Fig. 12 is a front elevation thereof;

Fig. 13 is a fragmentary plan showing the first end of the label wiped down;

Fig. 14 is a sectional view on the line 14—14 of Fig. 11, and

Fig. 15 is a similar view showing the cam roll released.

The invention is shown as applied to a machine embodying a frame 10 and operated by a power shaft 11 driven in any desired way. Through bevel gears 12 this shaft drives a transverse shaft 13 having a sprocket wheel 14 thereon. This sprocket wheel through a chain 8 drives a cam shaft 9. On this shaft are two cams 15 and 16. The cam 15 operates a cam roll 17 on a lever 18 which is held back against the cam by a spring 19 and is connected by a link 20 with a horizontal slide 21. This slide is mounted in guides on the frame 10, these guides including a pair of jibs 22. A single rotation of the shaft 14 will move this slide in the direction of the arrow in Fig. 1 to one extreme position and back to the other with a slight dwell at the extreme position.

The slide is provided with a bracket 23 carrying a three armed lever 24 which has one arm connected with a point on the bracket by a spring 25 and has on a second arm a cam roll 26 adapted to engage a plate cam 27 which is mounted in fixed position on the frame 10. The other arm of the lever 24 carries a wiping roll 28. The wiping roll is mounted on an inclined axis, if the surface to be labeled is conical, as shown, but, of course, if this surface is cylindrical this wiper will be mounted on a vertical axis.

The wiper is formed of soft material, such as is common with label wipers, as for example, felt, cork, rubber, or the like, and is held in position by any of the usual expedients, being supported from the top and depending from the lever 24.

The spring 25 holds the roll 26 in contact with the cam 27. The bracket 23, with the lever 24 and spring 25, moves back and forth. The roll 26 limits the motion of the wiper 28 outwardly or backwardly toward the article to be labeled by engagement with the cam 27. This will be explained more fully in considering the operation of the machine.

The other cam 16 on the shaft 9 operates a lever 30 by a roll 31 in opposition to a spring 32 and thus actuates a rod 33, which is shown as being arranged vertically. This rod, as shown in Figs. 6 and 7, is connected by a pivot pin 34 and a pivot pin 35 at right angles thereto with a link 36, which itself is pivoted to another link 37. This furnishes a universal joint and the raising of the rod 33 will raise the free end of the link 37. This link 37 is fixed on a rod 38 which is supported by brackets 39 on the top of the frame 10. This shaft 38 has fixed to it a frame 40 which has secured to it a head 41.

The wiping head 41 is provided with two parallel pivots 42 on which are pivotally mounted by means of brackets 43, a pair of detachable side label placing members 44 and 45. These side members are yieldingly held toward each other by a spring 46 connecting them and they are limited in their motion toward each other by stops 47

carried by the head 41. The action of raising the rod 33 by the cam 16 swings the head 41 on the axis 38 from a position back out of the way of the article to be labeled through the positions shown in Figs. 6 and 7.

As the label is placed in position by means of well known mechanism, shown in the form of pivoted label pickers 48 and held there by the usual gripper 49, the head 41 moves far enough to bring the member 44 across the label to turn the end of the label about a quarter way around the article to be labeled and cause the end to project at right angles to the main body of the label, as shown in Fig. 3. The part of the label at the center as far as it now contacts with the bottle need not be gummed. There is a dwell on the cam 16 which controls the members 44 and 45 and while these two members are at rest or moving only slowly in the position shown in Fig. 3 the rotary wiper 28 is moved across the article to smooth down the end of the label brought into position by the member 44. It was stated that the spring 25 holds the wiper 28 in such position that the roll 26 engages the surface of the cam 27 and the surface along which the roller 26 moves at this time is a straight surface.

The wiper 28 engages the article to be labeled and may engage the member 44. These two parts do not yield as the article is, of course, held firmly in the machine at this time. Therefore the wiper 28, being forced to move to the right in Fig. 3 and coming against a stationary article, is forced to move through the dotted line position shown in that figure, the roll 26 being forced away from the cam surface. The wiper 28 is pressed by the spring 25 against the surface of the article to be labeled and passes around that surface to lay down the end of the label throughout the length of that end. As the wiper leaves contact with the article to be labeled, after performing this function, there is nothing to prevent the wiper from moving backwardly as shown in dotted lines until the roll 26 engages the slanting part of the cam and then the wiper moves inwardly again to bring the wiper back into a position ready for retractive movement thereof, as will appear.

The next step in the operation of the machine consists in the movement of the members 44 and 45 further along as shown in Figs. 4 and 7. In this case the member 44 moves without function but the member 45 brings the other end of the label around so that it is laid a quarter of the way around the article to be labeled. Now, with the parts in the position shown in Fig. 4, the wiper 28 moves backwardly again and, guided by the roll 26 on the cam surface, it moves inwardly against the projecting end of the label and, controlled solely by the shape of the article being labeled, it lays that end of the label down, as shown clearly in Fig. 5 and the labeling operation is completed.

Of course, it will be understood that the usual label magazine 50 is employed. This labeling machine is shown really as applied to a labeler in which the article to be labeled has a straight line motion instead of a rotary motion but the principle can be applied to either type of machine.

In the form shown in Figs. 11 to 15, a cam, such as the cam 15, operates a lever 18 and through a link 20 reciprocates a slide 51. On this slide are two brackets 53 adjustably mounted. Each bracket carries a vertical stud, on which studs are pivoted levers 54 and 64. Each lever has a short arm 52 and these arms are connected by a spring 55. This spring normally tends to force both long arms of the lever forward so that spring-mounted rolls 56 and 66 thereon will engage the surfaces of two cams 57 and 67 with spring pressure.

The cam 57 is beneath the cam 67 and is provided with a double surface for operating the levers 54 and 64, respectively, in the same way as the cam 27 in the other form operates the lever 24. The wipers 58 are shown as in the form of two cylindrical soft-surfaced rolls, one mounted on each lever. The members 44 and 45 for laying down the ends of the labels are used and operated as in the other case.

The operation is as follows: With the parts in the position shown in Fig. 11, the member 44 is moved forward to place the label in the position shown. The wiper 58 on the lever 64 is located at the center of the object to be labeled and the slide 51 is just starting to move to the right. Guided by the left hand end of the cam 57, the roll 56 controls the left wiper 58 to move in dotted line position as indicated in Fig. 13. The roll engages the label on the article at the side thereof and comes to the position shown in that figure where this wiper has completed the laying down of that end of the label. The further motion of the slide 51 to the right brings this wiper quickly back out of the way and it continues until the roll 56 reaches the center of the double cam 57 which is the end of the motion in that direction.

In the meantime the other wiper roll 58 has been moving in the dotted line path shown in Fig. 13, its cam roll 66 being guided to the right end of the upper cam 67. At its extreme right end it encounters a slanting surface 59, and being conical at its upper end, is pushed down by this surface until it is in the plane of the cam 57. The spring 55, which of course always exerts its force is on both levers, now forces the cam follower roll 66 over into contact with the cam surface 57 and at the same time the slide 51 starts back. Now guided by this cam the wiper roll 58 on this arm 64 moves through a path to come into contact with the now projecting right hand end of the label which has been forced forward, meantime, by the member 45. This path is like the path pictured in Fig. 15 for the other wiper 58 only it is in the opposite direction and on the opposite end. The end of the operation will bring the wiper 58 to the position shown in Fig. 11 but the label in that case will be wiped entirely around the article and the labeling operation completed.

All this time the cam follower roll 66 has been resting against the cam surface 57 and at that point it comes out from under the overlying cam 67 and springs up so as to engage the edge of that cam to bring it back as shown. Of course, the roller 56 on the other lever 54 operates in the same way but that part of the cam 67 is broken away in Fig. 1 for the purpose of illustrating the lower cam but the slanting surface 60 corresponding with the slanting surface 59 is shown in Fig. 12. The rollers 56 and 66 are both constructed in the same way slidably mounted on a stud 61 which is fixed on the lever 54 or 64, as the case may be. The spring 71 is located under the roller and the top of the roller is beveled off at the edge to form a conical surface. The head of the stud 61 engages a shoulder on the inside of the roller, as shown in Fig. 15, to limit its upward motion while the cam 67, of course, holds the roller down against the opposition of the

spring after it is forced down by the cam surface 59 or 60 and until it reaches the position shown on the right side in Fig. 11.

By this construction a shorter stroke of the slide 51 is required and less time needed to complete the operation so that the machine, as so constructed, can be used to label some articles not easily labeled by machines with only one roller 28.

It will be seen that we have provided a complete movement for the wiper or wipers and label placing members by which they smooth down the label all around the article and reduce the number of motions. Also the complicated machinery heretofore used for this purpose is very much simplified. The fact that the two label placing members move together to perform their functions in a certain specified order without necessitating the moving of one ahead of the other is a material simplification. The fact that a single roll 28 can be employed in this simple manner to first wipe down one end of the label effectively on its stroke in one direction and then wipe down the other end by its stroke in the other direction adds materially to the simplification of the wiping mechanism of this machine. In the second form shown the travel of the slide 21 is much reduced by having two cam operated wipers and the machine thus adapted to label some articles not so readily accommodated by the other form.

The operation of the two sets of members from two cams on one shaft prevents any variation in the relative operations of the two and the necessity of adjusting them after they have once been set. The spring 46 connecting the two members together with the pivotal mounting thereof to allow the two members 44 and 45 to pass over the surface of the article to be labeled with a little spring pressure furnishes a certainty of contact at all times.

Although we have illustrated and described only two forms of the invention we are aware of the fact that other modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, we do not wish to be limited in this respect otherwise than as set forth in the claims, but what we do claim is:

1. In a label wiping device, the combination of two movable side members, both pivoted to swing together about a single horizontal axis, one located in advance of the other with respect to their line of motion, and means for swinging them along opposite sides of the article to be labeled.

2. In a label wiping device, the combination of a pivoted head, two movable parallel side members carried by said head, one located in advance of the other with respect to their line of motion, and means for yieldingly holding said members together so that they will place a label on both sides, but not at the same time.

3. In a label wiping device, the combination of two separated members, means for moving them together in a single direction to bring them on opposite sides of an article to be labeled, one of them being located in advance of the other, whereby the forward member will place one end of the label on one side of its center and after an interval the rear member will place the other end of the label on the other side of the center.

4. A wiping device for placing a label at points near the center of the label, comprising a pair of members arranged parallel with each other and mounted to move together in one direction, one of said members being in advance of the other, and means for moving said members as a whole in a straight path along the opposite sides of the article to be labeled, whereby the advanced wiper will first place the label on one side of the center and then, on the continued movement of both members, the other member will place the label on the other side of the center.

5. A label wiper comprising a head, means for moving said head in a certain direction, a pair of side members pivoted on parallel axes to said head, and yielding means for holding said members toward each other, whereby the said members can be moved over the opposite surfaces of an article to be labeled, one of the members being positioned forward of the other to place one end of a label first as the two members move forward, one in advance of the other, and the other end will be placed later on the motion of said members in the same direction.

6. In a label wiping device, the combination of a frame located adjacent to the article to be labeled, a head pivotally mounted on said frame, a pair of members movably carried by said head at a distance apart substantially the same as the diameter of the article to be labeled, one of said members being arranged forward of the other, and means for swinging said head forward toward the article to be labeled in such a direction that the article will be received between the two members, whereby one member will place one end of the label first and then the other member will place the other end of the label.

7. In a label wiping device, the combination of a pair of parallel members spaced apart and adapted to move toward the article to be labeled, with one member on one side and the other on the other side to place first one end of the label and afterwards the other over substantially half of the surface to be covered by the label, a wiping roller formed to the shape of the article to be labeled, and means for moving said roller over the article to be labeled in a direction transverse to the motion of said pair of members, after the first end of the label has been laid down thereby and for bringing it back again.

8. The combination with means for laying the two halves of a label down on an article about half way around it from the central point at the rear, of a freely rotatable wiping roller, and means for moving said roller to pass over the first end of the label and lay it down on the article during the forward motion of the roller and lay down the second end of the label over the first end during the retraction of the roller to original position.

9. In a label wiping device, the combination with means for applying a label to an article, means for first laying one end of the label about a quarter way around the article from a central point at the back, means movable transversely for wiping down that end of the label, means movable with the first-named means for laying down the other end of the label approximately a quarter way around the article, and means for moving the movable wiping means back substantially in its original path to wipe down the last end of the label.

10. In a label wiping device, the combination with means for holding the label at the center on the article, of two members movable together, one in advance of the other, whereby the advanced one lays down one end of the label, means movable transversely for wiping down said end of the label, means for moving the two members farther forward to cause the opposite end of the

label to be layed down partially, whereby when the transversely movable wiping means moves back it will wipe down the last end of the label completely.

11. In a labeling device, the combination with a slide movable forward and back in a direction transverse to the direction of the ends of the label when the center of the label has been laid on the article to be labeled mounted on the slide, a stationary cam, a lever, a wiping roller mounted on said lever, a roller on said lever for acting with the cam to prevent the wiping roller from moving too far toward the article to be labeled on movement in one direction, and yielding means for holding said cam roller against the cam on movement in the other direction.

12. In a labeling device, the combination with a reciprocable slide, of a stationary cam, a lever mounted on the slide, a wiping roller mounted on said lever, a cam roller on the lever for acting with the cam to prevent the wiping roller from moving too far toward the article to be labeled, and yielding means for holding said cam roller against the cam, the cam having means for forcing the wiping roller away from the article after its operation in one direction is completed.

13. In a device for laying down the two ends of a label, one after the other, the combination with a reciprocable slide, of a stationary cam, a lever movable with the slide, a label wiping roller mounted on the lever, a roller movable with the lever for acting with the cam to prevent the wiping roller from moving too far toward the article to be labeled, and yielding means for holding said cam roller against the cam, said yielding means acting to allow the wiping roller to be moved by the article to be labeled on the forward and reverse strokes of the slide so as to cause the roller to move around the surface of the article and lay down both ends of the label.

14. In a device for laying down the two ends of a label, one after the other, the combination with a reciprocable slide, of a stationary cam, a lever movable with the slide, a wiping roller mounted on the lever, a cam roller on the lever for acting with the cam to prevent the wiping roller from moving too far toward the article to be labeled and yielding means for holding said cam roller against the cam, said yielding means acting to allow the wiping roller to come into contact with the other end of the label on its return motion and to wipe that end down smoothly on the article and over the first end of the label.

15. In a labeling machine, the combination of a shaft, two cams on the shaft, two levers, each in position to be operated by one of said cams, a slide connected with one lever to move therewith, a yieldingly mounted wiping roller movable with said slide for wiping down the ends of the labels, a pair of members connected with the other cam to be moved by said other cam over the opposite sides of the article to be labeled, for laying the center of the label down on the article and leaving the ends projecting for operation thereon by the wiping roller.

16. In a labeling machine, the combination of a pair of side members spaced apart for passing on opposite sides of the article to be labeled, yielding means for holding them in contact with the article to be labeled, one being located in advance of the other, means for moving said members in a direction to lay a label first on one side and then on the other by their motion in one direction, and a transversely movable wiper adapted to wipe down the first laid down end of the label when it moves in one direction and to wipe down the opposite end of the label when it moves back.

17. In a labeling machine, the combination with a spaced pair of members, one in advance of the other and means for moving them simultaneously in one direction so that one member will engage the article to be labeled ahead of the other, of a pair of pivotally mounted wipers reciprocable means for moving one wiper over one end of the label, on the stroke of the reciprocable means in one direction, and for moving the other wiper over the other end of the label to complete the labeling operation, on the reverse stroke of the reciprocable means, and cams for controlling the pivotal motions of said wipers.

18. In a device for laying down the two ends of a label, one after the other, the combination with a pair of stationary cams, a pair of bodily reciprocable and individually pivoted levers, a cam roll on each lever, yielding means for holding said cam rolls against the cams, and a wiper on each lever, said cams being so constructed that, during the motion of the levers in one direction, one roll will engage the label on the object to be labeled and smooth the label down thereon up to a point at the center of the object and will then be drawn back and, on the reverse movement of the levers, the other wiper will accomplish the same result on the other end of the label.

19. In a device for laying down the two ends of a label, the combination with a reciprocable slide and a pair of levers having wipers located thereon, of a pair of cams, one cam having an edge surface for guiding the two wipers during their labeling operations and the other, located just above the first cam, for retracting the wipers, each lever having a cam roll provided with a spring for pressing it upwardly, whereby, when the upper and lower cam surfaces coincide, the said cam roll will be allowed to spring up into contact with the upper cam, and means on the upper cam for depressing the cam roll near the end of the stroke below the upper cam so that it can move into contact with the lower cam.

20. A label wiper comprising a head, means for moving said head in a certain direction, a pair of substantially parallel flat side wipers pivoted on said head so as to swing in a direction parallel to the planes of the flat surfaces of the wipers, and yielding means for holding the wipers toward each other.

21. In a labeling machine, the combination of a spaced pair of parallel members, one in advance of the other, means for moving them simultaneously, one in advance of the other toward the article to be labeled, yielding means for holding them against the opposite sides of the article to be labeled, whereby a properly placed label will have its middle part applied to one side of the article and have its ends projected forward from the other side of the article, a single transversely movable wiper, and means for moving the single wiper, whereby each end of the label will be wiped down in turn.

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