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ARTICLE ORIENTING MECHANISM

Filed May 2, 1945

3 Sheets-Sheet 1



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Aug. 26, 1947.

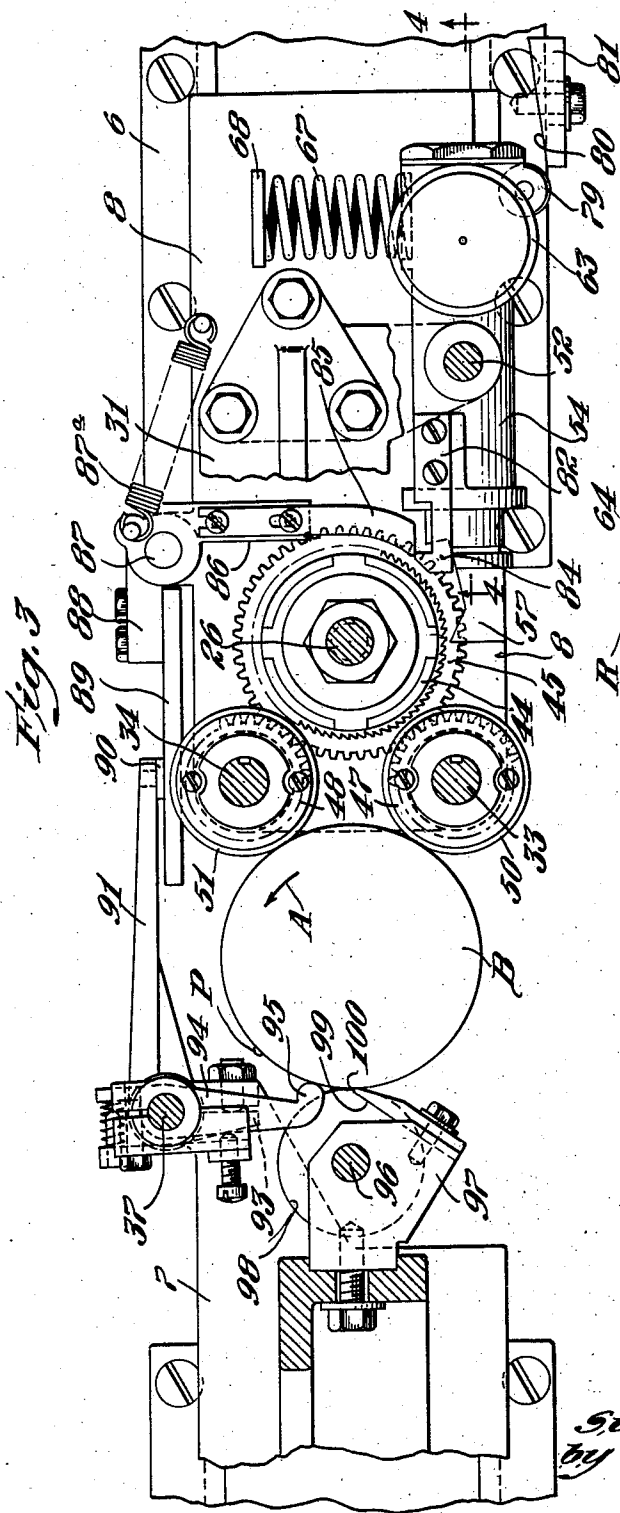
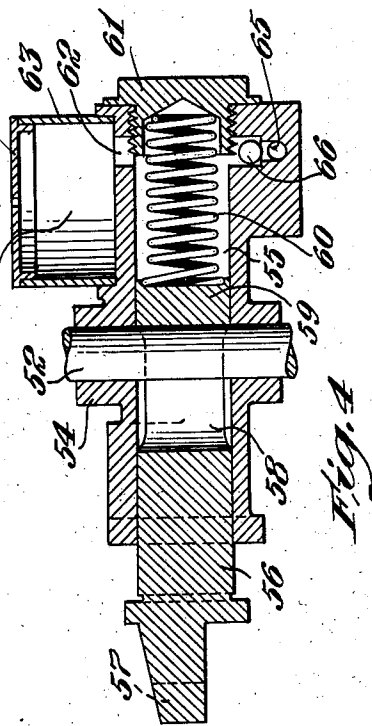
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ARTICLE ORIENTING MECHANISM

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3 Sheets-Sheet 2



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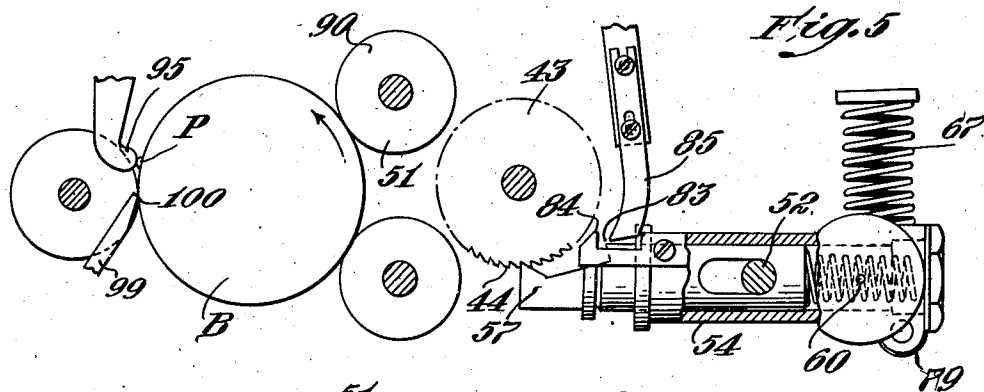
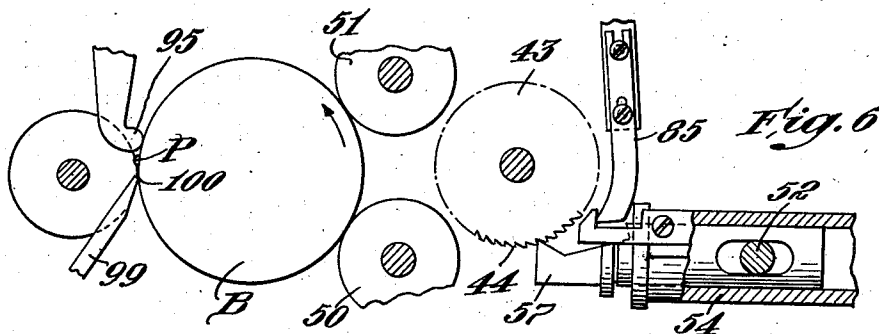
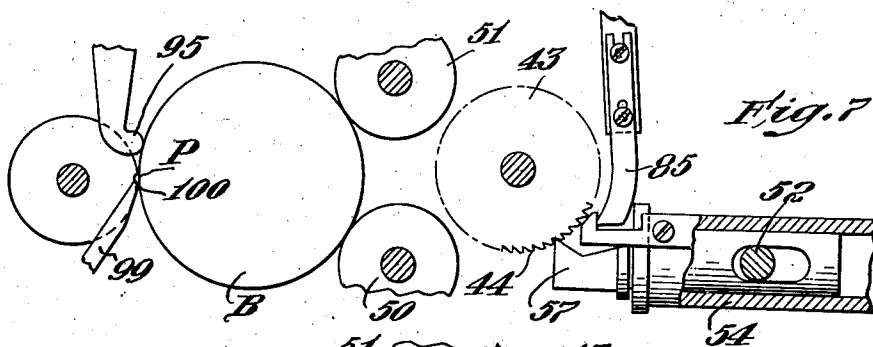
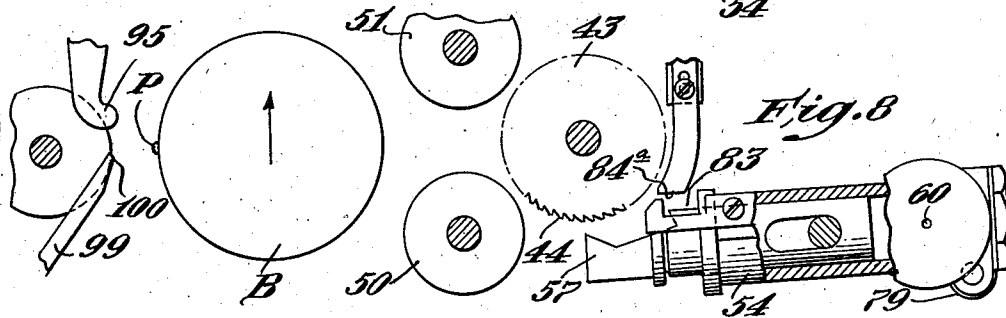
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ARTICLE ORIENTING MECHANISM

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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ARTICLE ORIENTING MECHANISM

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16 Claims. (Cl. 198—33)

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This invention pertains to labeling machines and relates more particularly to an improved spotting or orienting mechanism operative to turn the article which is to be labeled so as to insure application of the label at a predetermined point on the peripheral surface of the article. While of more general utility the invention is primarily intended to insure proper orientation for label reception of a bottle provided with a spotting element, rib, boss or "tear-drop" on its peripheral surface.

In customary apparatus of this type the bottom of the bottle rests upon a conveyor which moves it along a predetermined path past the spotting mechanism and the latter includes means operative rapidly to rotate the bottle about its own axis and a stop which is engaged by the spotting element of the rotating bottle and which thus stops rotation of the bottle with the spotting element at a definite predetermined point, such that when the spotting element is retracted and the bottle is advanced to the labeling station the label is applied at the desired point.

Since modern labeling machines operate at high speeds often exceeding 60 cycles per minute, the time available for operation of the spotting mechanism is very limited and accordingly the rotative speed of the bottle must be very great. Thus the spotting element encounters the stop while moving at high velocity. This frequently results in breaking or chipping the spotting element or cracking the bottle, or in the rebound of the bottle from the stop which impairs the accuracy of labeling.

To avoid these difficulties it has heretofore been proposed to apply a brake to the rotating article, in response to the impact of the spotting projection against a brake controlling feeler or detector element; or alternatively, in response to the action of a feeler or detector, to apply a positive stop to the article-rotating device. While these latter constructions do substantially eliminate danger of breaking the article or overtravel of the article, they may fail at times to terminate the rotation of the article at exactly the desired point, with consequent misplacing of the label.

In accordance with the present invention, accuracy is assured and breakage of the article is substantially prevented by first imparting to the article a very high rotative speed, and then, in response to the impact of the spotting element against a feeler device, suddenly reducing the speed of rotation so much that it becomes

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safe to allow the spotting projection to come into contact with a fixed stop.

Thus, the principal object of the present invention is to provide novel spotting means capable of effective operation regardless of the speed of the labeling machine, and which substantially eliminates breakage of the spotting element or bottle or the rebound of the bottle from the stop element; a further object being to provide spotting mechanism capable of rotating the bottle at sufficient angular velocity to insure proper orientation regardless of the speed of the labeling machine, but which insures gentle contact of the spotting element with a fixed stop thereby positively to stop rotation of the desired orientation and to avoid damage and rebound.

Other and further objects and advantages of the invention will be pointed out in the following more detailed description and by reference to the accompanying drawings wherein

Fig. 1 is a fragmentary end elevation of the apparatus of the present invention showing it associated with a conveyor, the latter being indicated in vertical transverse section;

Fig. 2 is a fragmentary side elevation to larger scale showing a friction drive mechanism forming an element of the apparatus;

Fig. 3 is a fragmentary horizontal section, substantially on the line 3—3 of Fig. 1, but to larger scale;

Fig. 4 is a fragmentary vertical section substantially on the line 4—4 of Fig. 3, but to larger scale; and

Figs. 5 to 8 inclusive are diagrammatic plan views, partly broken away and in horizontal section, showing various stages in the operation of orienting an article.

The patent to Essen No. 2,222,503, dated November 19, 1940, discloses article-orienting mechanism of the general type to which the present invention pertains, and may be referred to for such further details of construction as are not herein fully illustrated.

Referring to the drawings, the numeral 1 designates the base frame of the orienting mechanism of the present invention. This base supports an upright 2 which carries the stationary rails 3 of the conveyor along which the articles to be oriented, for instance bottles B, are moved intermittently by means of a feed bar 4.

At opposite sides of the upright or standard 2, supporting members 5 and 6 are fixedly mounted upon the base 1, the member 5 being provided with a horizontal guideway for the horizontally movable slide 7 which supports the article stop-

ping means, while the support 6 is provided with a horizontal guideway for the horizontally moving slide 8 which carries the article-rotating mechanism.

The frame 1 has bearings for a power driven shaft 9 on which are mounted cams 10 and 11, which respectively engage rollers 12 at the inner ends of bell-crank levers 13 and 14. These bell-crank levers are fulcrumed on the frame at the points 15 and 16 respectively, the lever 13 having an upwardly directed arm 17 and the lever 14 having an upwardly directed arm 18. The upper end of the arm 17 is connected by a pin 19 to a slotted lug projecting downwardly from the slide 8, while the upper end of the arm 18 is connected by a pin 20 to a slotted lug projecting downwardly from the slide 7. With this construction, rotation of the shaft 9 causes the bell-crank levers 13 and 14 to be rocked simultaneously in opposite directions and thus to move the slides 7 and 8 inwardly toward each other and outwardly away from each other in properly timed relation. The contour of the cams 10 and 11 necessary to produce this relative motion of the slides 7 and 8 is well within the province of the mechanic skilled in the art and is not herein specifically illustrated.

The support 6 is provided with a bearing at 21 for a horizontal shaft 22 having at one end a pulley 23 embraced by a belt 24 receiving driving power from any suitable source for rotating the shaft 22, the latter being provided with a spline-way 30 which receives a key or spline carried by a beveled gear 28 turning in a bearing in a bracket 29 carried by the slide 8. The gear 28 constantly meshes with a beveled gear 27 fast to the lower end of a vertical shaft 26, the lower end of which turns in a bearing 25 carried by the slide 8. By reason of the construction just described, the shaft 26 is driven by the shaft 22, regardless of the position of the slide 8. The slide 8 carries an upstanding bracket 31 provided with an overhanging portion 32 at its upper end in which is a bearing for the upper end of the shaft 26. This overhanging portion 32 of the bracket 31 also has bearings for the upper ends of a pair of horizontally spaced, vertical shafts 33 and 34, respectively, whose lower ends turn in bearings provided in the slide 8.

The slide 7 also has an upstanding bracket 35 provided with an overhanging portion 36 having a bearing for the upper end of a vertical shaft 37 whose lower end turns in a bearing in the slide 7.

The shaft 26 (Fig. 2) carries a friction-clutch driving mechanism 38. This mechanism comprises the clutch disk 39, splined to shaft 26 and which is urged downwardly axially of the shaft by a coiled spring 40 whose upper end abuts a collar 41. This collar is adjustable vertically of the shaft 26 by means of a nut 42. By turning this nut the spring 40 may be compressed more or less and thus the pressure exerted by the clutch disk 39 against its cooperating part may be varied and thus the force transmitted by the clutch mechanism may be varied at will. One or more friction disks are interposed between clutch disk 39 and the upper face of the cooperating coaxial clutch member 43, the latter being loose on the shaft 26. The member 43 is rigidly secured to or integral with a ratchet wheel 44 and also with a spur gear 45 having a hub portion 46 which rests upon the upper surface of the slide 8. The spur gear 45 constantly meshes (Fig. 3) with pinions 47 and 48 fixed to the shafts 33 and 34 respectively. The gears 47 and 48 are

provided with hub portions 49 (Fig. 1) to which are secured friction rolls 50 and 51, respectively, formed of any suitable friction material, for example rubber, synthetic rubber, felt, or the like, and which are designed to bear against the peripheral surface of the bottle B so as to rotate the bottle in the direction of the arrow A (Fig. 3).

A vertical shaft 52 (Fig. 4) is secured at its upper end in an opening in the portion 53 (Fig. 1) of the bracket 31 and at its lower end in a suitable opening in the slide 8. On this shaft 52 there is mounted to turn a housing 54 (Fig. 4). This housing has a horizontally elongate cylindrical chamber 55 in which slides the elongate shank portion 56 of a pawl member 57. This shank portion 56 is furnished with an elongate slot 58 for the reception of the shaft 52 and its rear end has a close sliding fit to form a piston 59 in the chamber 55. A compression spring 60 within the chamber 55 bears at its left-hand end against the piston 59 and at its right-hand end against a cap 61 having screw-threaded engagement with the housing 54 and constituting an end closure for the chamber 55. A small port 62 provides communication between the chamber 55 and the interior of a reservoir R defined by a cylindrical casing 63 secured leak-tight to the member 54 and preferably having a removable cap 64. A drain passage 65, provided with a ball check valve 66, leads from the lower part of the chamber 55 through the substance of the housing 54 and opens into the lower part of the reservoir R. The chamber 55 is filled with some liquid, for example oil, and in effect constitutes a dashpot to retard the movement of the piston 59 toward the right. As this part 59 moves toward the right, the oil is caused to flow up through the port 62 into the reservoir R, the size of the port 62 determining the speed at which the piston may thus move to the right. Return movement of the fluid which is thus forced up into the reservoir is facilitated by the drain passage 65, the ball 66 lifting freely to permit reverse flow of the fluid back into the chamber 55 but preventing its down flow through the passage 65.

A spring 67 bears against the side wall of the housing 54 at the right-hand end of the latter, the other end of the spring engaging a fixed abutment 68 carried by the slide 8. The spring 67 thus tends to swing the housing 54 in a clockwise direction, so as to engage the pawl 57 with a tooth of the ratchet wheel 44.

The housing 54 is provided with a cam follower roll 79 turning about a vertical axis and designed at times to engage an inclined cam surface 80 formed on a block 81 adjustably secured to the side of the support 6.

Fixed to the upper part of the housing 54, adjacent to its left-hand end, is a latch member 82 having a recess 83 and a projecting latch toe 84 at the left-hand end of the recess. This toe 84 is designed to be engaged, at times, by a movable retainer 85 adjustably secured to one arm 86 of a bell-crank lever pivoted to turn on a vertical stub shaft 87 carried by the support 6. A spring 87^a tends to turn this bell-crank in a clockwise direction. This bell-crank has a second arm 88 to which is secured one end of an elongate horizontally extending abutment arm 89 whose substantially straight vertical rear surface is engaged by a pad 90 (Fig. 3) at the right-hand end of an arm 91 of a bell-crank secured to the lower part of the shaft 37. This bell-crank comprises a second arm 93 to which there is adjustably secured a detector arm 94 having a feeler portion

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95 designed to contact the peripheral surface of the bottle B.

A shaft 96, parallel to the shaft 37, is fixed at its lower end in an opening in slide 7 and at its upper end in a bracket 97 fixed to the slide. An abutment roll 98 turns freely on this shaft. A stop member 99 is adjustably attached to bracket 97, and has a tip portion 100 which is designed to be engaged by the spotting projection P on the bottle and thereby positively to stop rotation of the bottle. As illustrated, the stop 100 is spaced approximately 10° of arc from the detector 95.

The operation of the mechanism is more clearly illustrated by reference to Figs. 3 and 5 to 8 inclusive. Just prior to the delivery (by the conveyor) of the bottle to the orienting or spotting position, the slides 7 and 8 are moved apart by the cams 10 and 11. The bottle comes to rest on the conveyor in a position such that its vertical axis is substantially in the vertical plane of the axes of the shafts 26 and 96. The slides 7 and 8 now move in toward each other until the friction drive rolls 50 and 51 engage the periphery of the bottle, which is concomitantly engaged at its opposite side by the abutment roll 98. The shaft 26 is being constantly rotated and thus by means of the friction clutch mechanism 38, is turning the gear 45 and the pinions 47 and 48 so that the friction rolls are constantly turning. The shaft 26 is driven at such a speed that instantly the friction rolls engage the bottle, the latter is started into rotation at a high angular velocity.

At the beginning of the operation, as just described, the retainer member 85 is in engagement with the latch toe 84, as shown in Fig. 3, thus holding the pawl 57 out of engagement with the teeth of the ratchet 44. The clutch mechanism 38 thus drives the gear 45 at substantially the same angular velocity as the shaft 26. As shown in Fig. 3, the spotting projection P which may be a special "teardrop projection" designed for this particular purpose, or which may be of any other projecting element of the bottle, for example lettering or the like, is nearing but has not yet reached the detector 95. In Fig. 5 the spotting projection P is shown in engagement with the detector 95 and as having pushed the detector radially away from the bottle. This outward movement of the detector 95 is accompanied by a swinging of the arms 94 and 91 in a clockwise direction about the shaft 37, thus causing the pad 99 to bear against the arm 89, thus swinging the arm 89 and the arm 86 in a counterclockwise direction. This movement removes the retainer 85 from the latch toe 84, enabling the spring 67 to swing the housing 54 in a clockwise direction so as to cause the detent 57 to engage a tooth of the ratchet 44. During this movement the detent 85 enters the recess 83. As soon as the detent 57 engages a tooth of the ratchet 44, the free rotational movement of the latter is thus interfered with, and further rotational movement of the ratchet 44 and the gear 45 can only take place as permitted by the rectilinear recession of the pawl 57, and as a result of the slippage of the driven element 43 of the clutch device 38 relatively to the constantly rotating drive element 39. The pawl may move to the right, as shown in Fig. 5, against the pressure of the spring 60, and as permitted by the slow leakage of the liquid from the chamber 55 through the port 62. This slow retreat of the pawl 57 permits the gear 45 to turn, but at a very

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much slower rate than normal. Correspondingly the rotative speed of the friction rolls 50 and 51 is very much reduced from normal, so that the speed of rotation of the bottle is reduced from its original speed to a very low speed immediately after the spotting projection P engages the detector 95. The bottle now continues to turn at this very slow speed (Fig. 6) until the spotting projection P engages the fixed stop 99 (Fig. 7). Although, during this travel of the spotting projection P, it disengages the detector 95 and permits the latter to return to its normal position, the retainer 85 is still within the recess 83, so that the pawl 57 still engages the ratchet wheel 44. When the spotting projection P strikes the fixed stop 100, rotation of the bottle ceases, the friction rolls 50 and 51 then slipping on the bottle. The cams 10 and 11 are so contoured as to retract the slides 7 and 8 soon after the bottle is thus stopped, thus removing the rolls 50, 51 and 98 from the bottle, and at the same time removing the stop 99 and detector 95 from the bottle, so that the bottle is free to be moved along the conveyor to a subsequent station, for example a station at which the label will be applied.

As the slide 8 moves to the right, the roll 79 engages the inclined cam surface 80, thus swinging the housing 54 in a counterclockwise direction until the retainer 85 is permitted to ride up over the latch member 84, thus disengaging the pawl 57 from the ratchet 44 and holding it out of engagement with the ratchet until the beginning of the next cycle of operations.

The arrangement above described thus permits a very rapid initial rotation of the bottle requisite to bring the spotting projection to the approximate stopping position, and then suddenly reduces the speed of the bottle to a fraction of its original speed, so that when the spotting projection actually engages the fixed stop the velocity of the bottle is so small that there is no danger either of breakage or rebound.

While one desirable embodiment of the invention is herein illustrated by way of example, it is to be understood that the invention is broadly inclusive of any and all modifications falling within the scope of the appended claims.

I claim:

1. Article-orienting apparatus having in combination means for conveying successive articles each having a projecting element, means for rotating the articles at a normally high angular velocity, detecting means actuable by the projecting element as the article rotates, and connections between the detecting means and the article-rotating means for reducing the angular velocity of the article from its normal high velocity to a relatively low substantially constant velocity, and a stop engageable by the projecting element while the article is rotating at said lower velocity.

2. Article-orienting apparatus having in combination means for conveying successive articles each having a projecting element, means, including a slip clutch comprising a driving and a driven member, for rotating the articles at a normally high angular velocity, a detector actuable by the projecting element as the article rotates, and connections between the detector and the clutch operative to reduce the velocity of the driven element of the clutch to a predetermined velocity less than its normal velocity, and a stop engageable with the projecting element while

the article is rotating at a velocity below its normal velocity.

3. Article-orienting apparatus having in combination means for conveying successive articles each having a projecting element, means, including a slip clutch comprising a driving and a driven member, for rotating the article at a normally high angular velocity, a detector actuable by the projecting element as the article rotates, means operative to reduce the angular speed of the driven member of the clutch while the driving member continues to turn at normal speed, and connections between the detector and said speed-reducing means operative, in response to actuation of the detector, to reduce the speed of the driven member of the clutch thereby to reduce the rotational speed of the article, and stop means operative to engage the projecting element and thereby to terminate rotation of the article while the latter is turning at the lower speed.

4. Article-orienting apparatus having in combination means for conveying successive articles each having a projecting element, means, including a friction clutch comprising a driving and a driven member, for rotating the article at a normally high angular velocity, a detector actuable by the projecting element as the article rotates, the driven member of the clutch having peripheral ratchet teeth, a detent engageable with said teeth, means supporting the detent to permit its regression when contacted by the ratchet teeth, means responsive to the detector for moving the detent into engagement with said teeth thereby to reduce the peripheral speed of the driven clutch member substantially to the permissive speed of regression of the detent, and a stop engageable with the projecting element thereby to terminate rotation of the article while the latter is turning at less than normal speed.

5. In combination in a machine for orienting articles each of which has a projection thereon, means normally operative to rotate the article at high angular velocity about its own axis, a substantially rigid stop engageable by the projection thereby to terminate rotation of the article, a detector spaced from the stop peripherally of the article in a direction from which the projection approaches the stop, and means responsive to engagement of the detector by the projection suddenly to reduce the angular velocity of rotation of the article to a substantially constant lower velocity, while the projection is moving from the location of the detector to the stop.

6. In combination in a machine for orienting articles each of which has a projection thereon, means including a frictionally driven element operative to rotate the article at high angular velocity about its own axis, a substantially rigid stop engageable by the projection thereby to terminate rotation of the article, detector means spaced from the stop peripherally of the article in the direction from which the projection approaches the stop, and means responsive to actuation of the detector means by the projection, as the article rotates, suddenly to reduce the angular velocity of the article to a predetermined relatively low velocity while the projection is moving from the detector means to the stop.

7. In combination in a machine for orienting articles each of which has a projection thereon, means including a frictionally driven element operative to rotate the article at high angular velocity about its own axis, a substantially rigid stop engageable by the projection thereby to ter-

minate rotation of the article, a pivoted detector finger spaced a distance of the order of 10° of arc from the stop peripherally of the article in the direction from which the projection approaches the stop, and means responsive to swinging of the detector finger when contacted by the projection on the rotating article suddenly to reduce the angular velocity of the article to a predetermined relatively low velocity, while the projection is moving from the detector toward the stop.

8. Spotting mechanism for use in a labeling machine of the kind wherein articles are advanced toward a label-applying station by conveyor means, each of said articles having a spotting element, and wherein article-rotating means engages the article at the spotting station thereby to bring the spotting element on the article into engagement with a normally fixed stop, characterized in having a feeler element arranged to engage the spotting element on the article before the latter engages the stop, and means, including a movable part whose maximum velocity of movement is determined by a dash-pot device, responsive to movement of the feeler element and which is operative to reduce the speed of rotation of the article before the spotting element encounters the stop.

9. Spotting mechanism for use in a labeling machine of the kind wherein articles are advanced toward a label-applying station by conveyor means, each of said articles having a spotting element, and wherein an article-engaging, friction driven roll, normally driven at high speed by a slip clutch including a driving and a driven member, engages the article at the spotting station thereby to rotate the article about its own axis so as to bring the spotting element into contact with a suitably arranged stop and wherein a detector is engageable by the spotting element as the latter approaches but before it engages the stop, characterized in having means, including a sliding detent and a dash-pot for determining its maximum velocity of movement, responsive to action of the detector for reducing the angular velocity of the driven member of the slip clutch to a predetermined amount less than its normal velocity, thereby to cause the spotting element to approach the stop at a safe speed.

10. Spotting mechanism for use in a labeling machine of the kind wherein articles are advanced toward a label-applying station by conveyor means, each of said articles having a spotting projection, and wherein an article-engaging friction driven element, normally driven at high speed by a slip clutch mechanism including driving and driven members, engages the article at the spotting station thereby to rotate the article about its own axis so as to bring the spotting projection into engagement with a substantially rigid stop and wherein a detector is engageable by the spotting element as the latter approaches but before it contacts the stop, characterized in having a detent capable of retrogression at a predetermined low velocity, movable into operative relation to the driven member of the slip clutch by action of the detector thereby suddenly to reduce the peripheral speed of the driven member of the clutch substantially to the velocity of retrogression of said detent element.

11. Spotting mechanism for use in a labeling machine of the kind wherein articles are advanced toward a label-applying station by con-

veyor means, each of said articles having a spotting element, and wherein an article-engaging, friction driven part, normally driven at high speed by a slip clutch mechanism including driving and driven members, engages the article at the spotting station thereby to rotate the article about its own axis so as to bring the spotting element into engagement with a substantially rigid stop and wherein a detector is engageable by the spotting element as the latter approaches but before it contacts the stop, characterized in having a detent element capable of retrogression in opposition to a spring, and means responsive to the detector for moving the detent element into operative relation to the driven member of the slip clutch mechanism thereby suddenly to reduce the peripheral speed of the driven member of the slip clutch mechanism, while permitting it to continue to turn at a velocity below normal.

12. Spotting mechanism for use in a labeling machine of the kind wherein articles are advanced toward a label-applying station by conveyor means, each of said articles having a spotting element, and wherein an article-engaging friction driven part, normally driven at high speed by a slip clutch mechanism including driving and driven members, engages the article at the spotting station thereby to rotate the article about its own axis so as to bring the spotting element into engagement with a substantially rigid stop, and wherein a detector is engageable by the spotting element as the latter approaches but before it contacts the stop, characterized in that the driven member of the slip clutch mechanism is provided with peripheral ratchet teeth, a detent housing pivoted to swing about an axis parallel to that of the driven member of the clutch mechanism, said housing having therein a guideway for a detent, a detent having a shank portion sliding in said guideway and a tooth portion engageable with a tooth of the driven clutch member, the shank portion of the detent having a piston portion sliding in a cylinder containing a body of fluid and having a delivery port, a spring tending to project the detent outwardly from the cylinder, the body of fluid in the cylinder acting to determine the rate of regression of the detent in opposition to the spring, and means responsive to action of the detector for swinging the detent housing thereby to engage the tooth of the detent with a tooth of the driven clutch member.

13. Spotting mechanism for use in a labeling machine of the kind wherein articles are advanced toward a label-applying station by conveyor means, each of said articles having a spotting element, and wherein an article-engaging friction driven part, normally driven at high speed by a slip clutch mechanism including driving and driven members, engages the article at the spotting station thereby to rotate the article about its own axis so as to bring the spotting element into engagement with a substantially rigid stop, and wherein a detector is engageable by the spotting element as the latter approaches but before it contacts the stop, and wherein a pair of oppositely reciprocating slides support the stop and detector, and the friction drive means and its driving clutch, respectively, characterized in that the driven member of the slip clutch mechanism is provided with peripheral

ratchet teeth, a detent housing pivoted to swing about an axis parallel to that of said driven member of the clutch, said housing having therein a cylindrical chamber, a piston sliding in said chamber and having a part projecting from the housing and which carries a detent tooth for engagement with a tooth of said driven clutch member, the cylinder containing a spring tending to project the piston from the cylinder and containing a body of liquid and having a leak port through which the liquid may escape, spring means normally tending to swing the housing and thereby engage the detent tooth with a tooth of the driven member of the clutch, a retainer operative to prevent such swinging of the housing, and means responsive to actuation of the detector for retracting said retainer thereby to permit the housing to swing and engage the detent with a ratchet tooth.

14. Article-orienting apparatus having in combination means for conveying successive articles each having a projecting element, means, including a slip clutch comprising a driving and a driven member, for rotating the articles at a normally high angular velocity, a detector engageable by the projecting element as the article rotates, speed reducing means, including a dash-pot device, for reducing the velocity of the driven element of the clutch to a predetermined lower velocity, and connections for transmitting motion from the detector to said speed reducing means, and a stop engageable with the projecting element while the article is rotating at a velocity below its normal velocity.

15. Article-orienting apparatus having in combination means for conveying successive articles each having a projecting element, means, including a slip clutch comprising a driving and a driven member, for rotating the articles at a normally high angular velocity, a detector engageable by the projecting element as the article rotates, speed reducing means operative to reduce the velocity of the driven element of the clutch to a predetermined lower velocity while the drive element of the clutch continues to turn at its normal high velocity, connections for transmitting motion from the detector to the speed reducing means, and a stop engageable with the projecting element while the article is rotating at a velocity below its normal velocity.

16. In combination in a machine for orienting articles each of which has a projection thereon, means normally operative to rotate the article at high angular velocity about its own axis, a substantially rigid stop engageable by the projection thereby to terminate rotation of the article and means, including a dash-pot device, operative suddenly to reduce the angular velocity of rotation of the article to a substantially constant lower velocity just before the projection engages the stop.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,608,119	Perchard	Nov. 23, 1926
2,222,504	Essen	Nov. 19, 1940