

March 3, 1964

J. G. McKAY
SYNCHRONIZING DEVICE FOR CARTON PRINTING
APPARATUS AND THE LIKE

3,122,993

Filed May 19, 1959

3 Sheets-Sheet 1

Fig. 1.

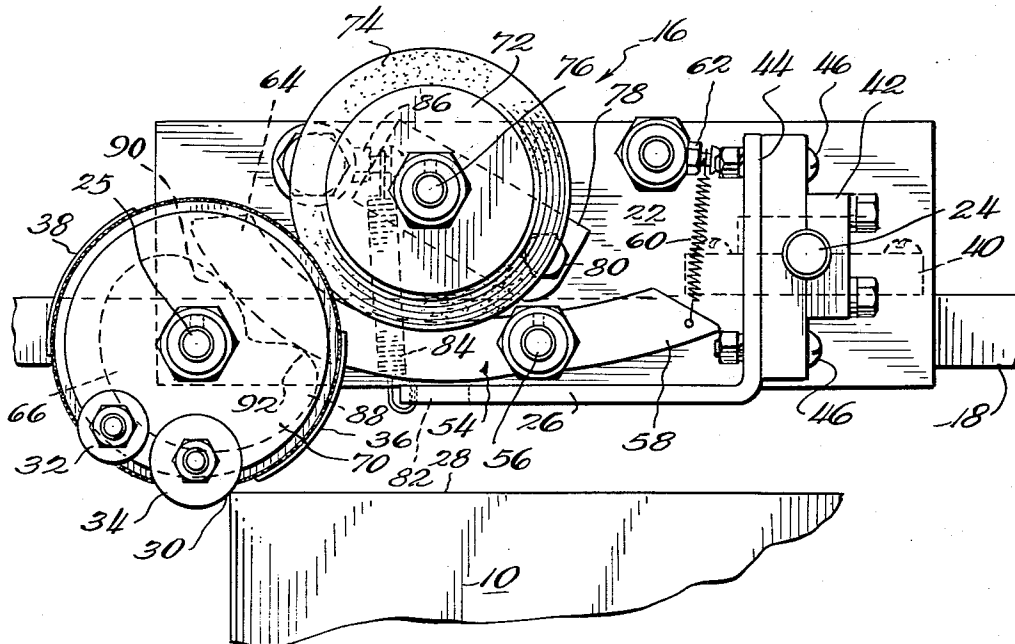
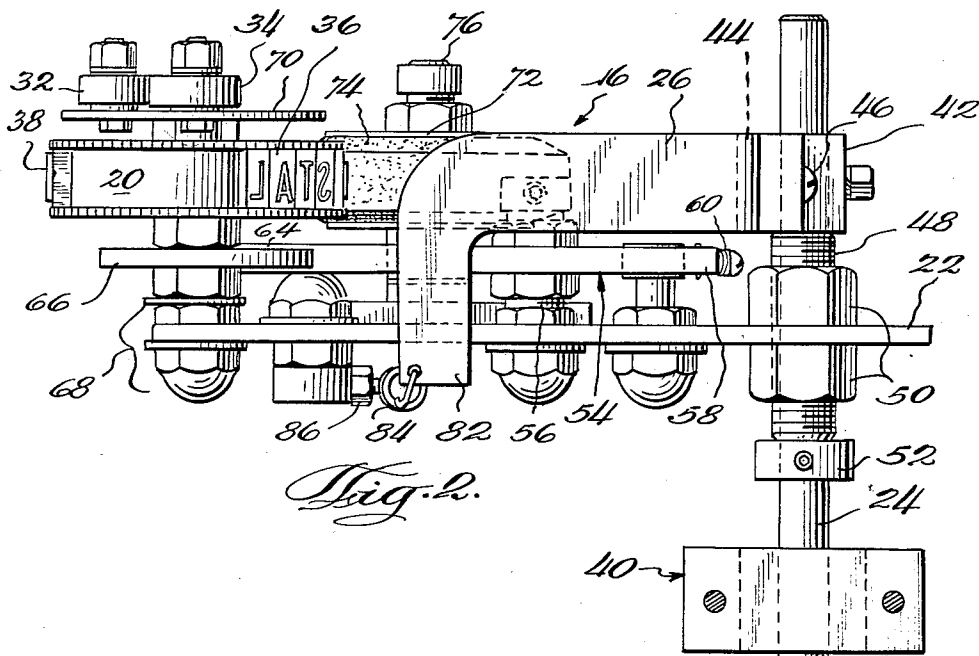


Fig. 2.

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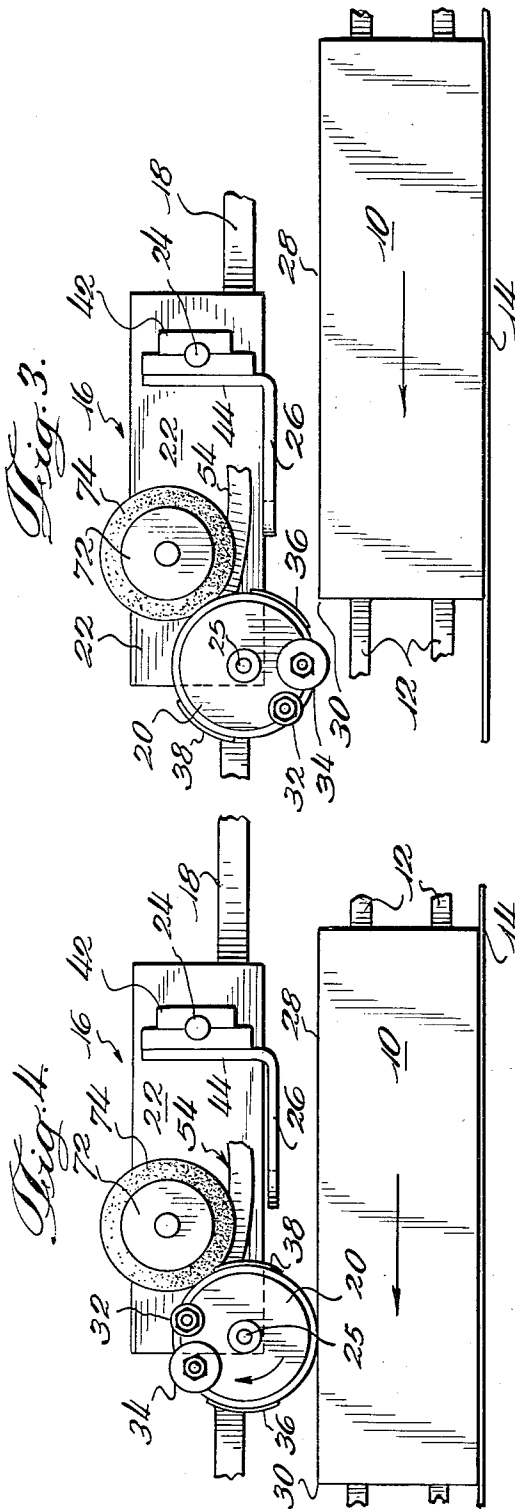
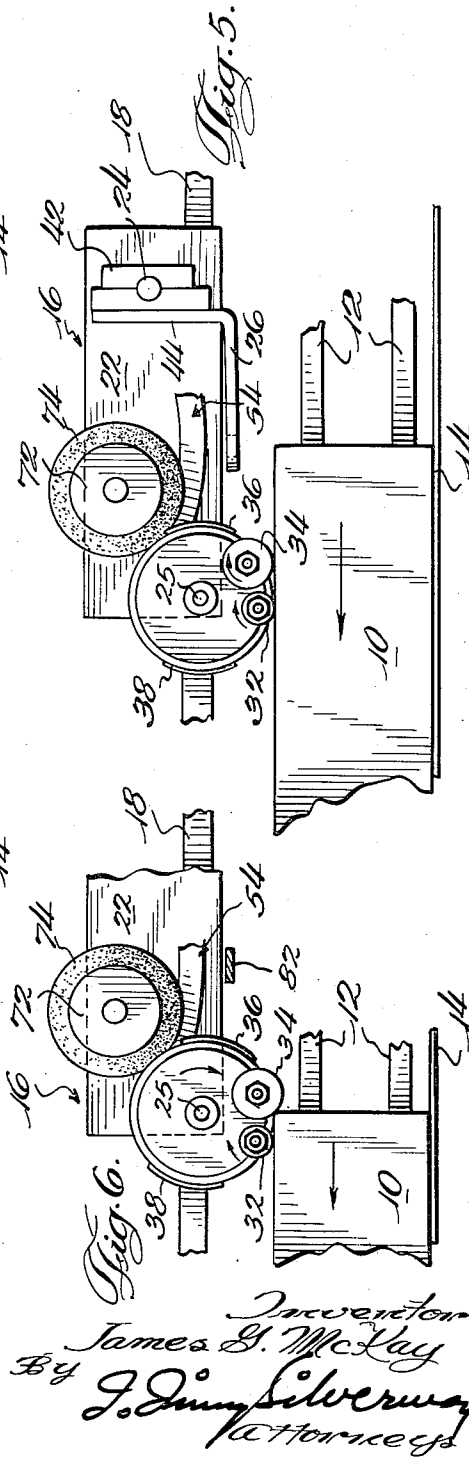
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3 Sheets-Sheet 2



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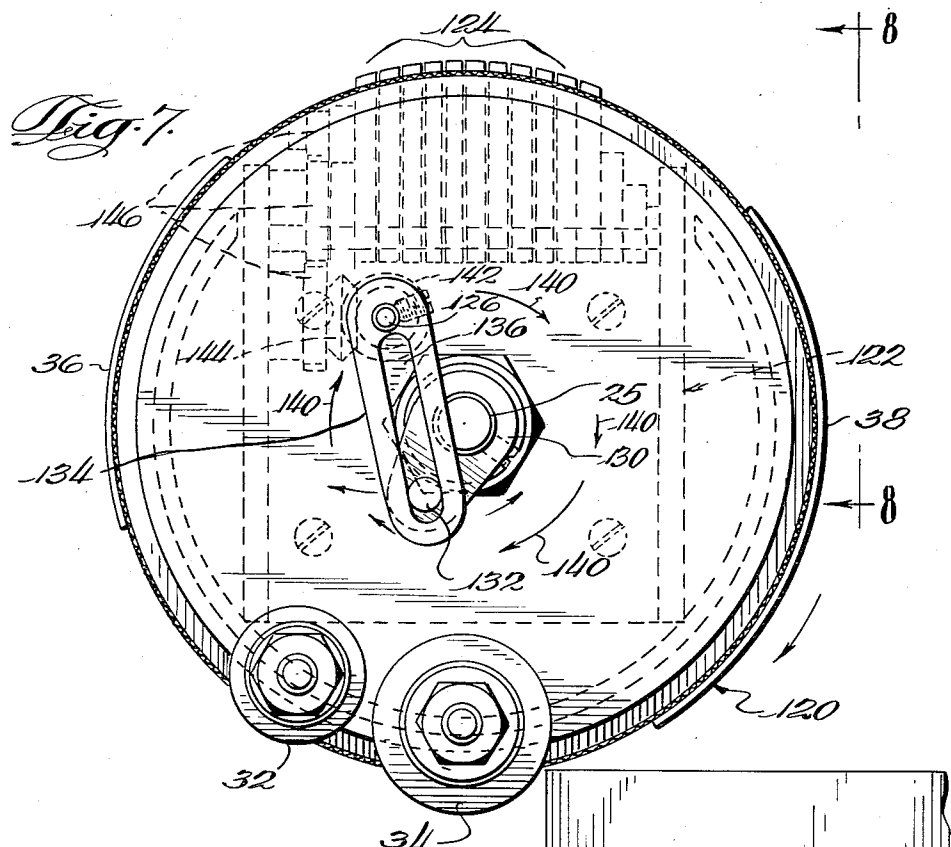
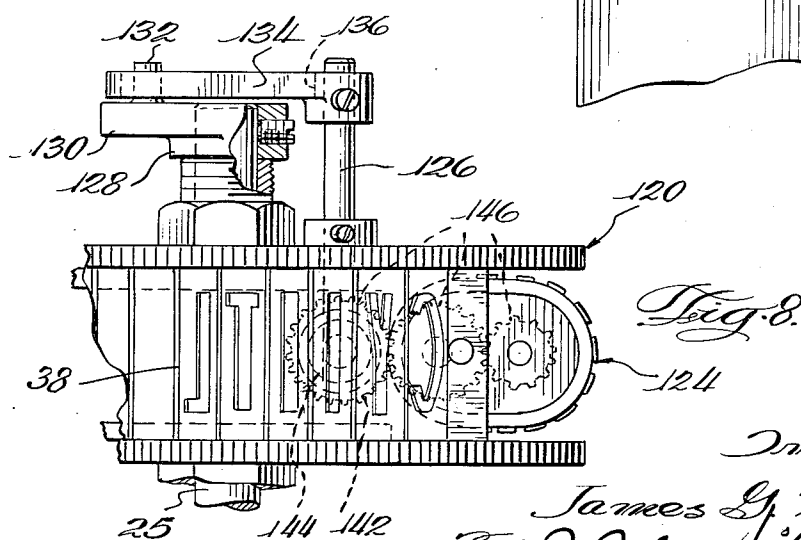
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3 Sheets-Sheet 3



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3,122,993
**SYNCHRONIZING DEVICE FOR CARTON PRINT-
ING APPARATUS AND THE LIKE**
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18 Claims. (Cl. 101—35)

This invention relates generally to apparatus for printing information on packages or the like, and more particularly is concerned with a synchronizing device whereby the imprint made upon a package will always occur in the same location irrespective of the length of the package. The invention also relates to a structure whereby the said printing apparatus will consecutively number the packages, irrespective of the length of the package.

For purposes of distinguishing the several rotary movements of the roller means, the terms "bodily rotation" are used in the claims to mean the angular movement of the roller means about the axis of rotation of the printing wheel and terms "rollable rotation" are used in the claims to mean rotation of the roller means when engaged with a package, and independently of the printing wheel.

In the printing of various information upon packages or cartons which are passing along a conveyor, the primary problem is the location of the imprint at precisely the same location on every package. This is especially true where the imprint device relates to code-dating, or marking of flavors, colors, and the like and must share the area of the side of the package upon which it is printed with other printed matter. Where packages are to be numbered, the problem is increased because the consecutive numbering device must pass through only a single cycle for each package. Further, where it is desired that a plurality of different length packages be marked and/or consecutively numbered, the problems have been unsurmountable, so far as I am aware.

An undesirable characteristic in prior devices which attempt to accomplish the functions of the invention herein has been their complexity, with accompanying expense, difficult maintenance procedures, and difficulty of adjustment and use. Highly involved machinery of this type becomes too inflexible because of its inability to be adapted to varying conditions found in industry. Even where the particular use is intended only for one particular kind of container or carton, the apparatus is usually required to be custom-made, and is not adaptable to different conditions in different plants.

One of the important features of the invention herein is that it is adapted to substantial portability, being simple and fool-proof in construction and operation, and can readily be adapted to substantially any kind of conveyor for imprinting a wide variety of packages without any modification of the apparatus whatsoever. Even more unusual and important is the structure by reason of which the apparatus herein can place imprints on a line of moving packages of different lengths, can consecutively number the same, and can place the imprint at the same distance from the leading edge of the package considering the direction of movement of the packages regardless of variation in lengths of the said packages.

The primary objects of the invention are concerned with the provision of structures for accomplishing the above described functions and achieving substantial advantages over the prior art.

Many other objects and advantages will become more apparent as the description of the preferred embodiment proceeds in connection with which there are illustrated in the drawings the structures thereof as exemplary, and not by way of limitation.

In said drawings:

FIG. 1 is a top plan view of a package imprinting de-

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vice which is constructed in accordance with the invention and which has been installed upon a conveyor, a portion of a moving carton being illustrated in position about to engage with and operate the package imprinting device.

FIG. 2 is a side elevational view of the same.

FIG. 3 is a top plan diagrammatic view similar to FIG. 1 but showing the carton or package moving down the conveyor and prior to engaging with the package imprinting device.

FIG. 4 is a view similar to that of FIG. 3, but showing the printing wheel in the process of rotating after applying the imprint to the carton.

FIG. 5 is a view similar to that of FIG. 4, but in this case, a second imprint has been made and the printing wheel is in its non-rotating position with the rollers riding upon the remaining surface of the container or package.

FIG. 6 is a view similar to that of FIG. 5 but showing the printing wheel as it completes its rotation and is moving to a position poised for engagement with the leading edge or corner of the next package.

FIG. 7 is a bottom view of a modified form of printing wheel which is provided with a consecutive numbering device and illustrating the details of a linkage to cause actuation of said numbering device for each rotation of the wheel.

FIG. 8 is a fragmentary top plan view of the structure of FIG. 7 with parts shown in section.

Reference may be had to FIGS. 1 and 2 for the detailed description of the basic structure of the invention, as will be set forth hereinafter, but for an explanation of the operation of the structure the order of illustrations is FIG. 3, FIG. 1, FIG. 4, FIG. 5 and finally FIG. 6. The general operation will first be described, which will assist best in a complete understanding of the invention.

Assume that a carton, container or other package 10 is moving along a conveyor, such as for example that represented in the drawings at 12 by a pair of chains or belts with a side rail 14 confining the movement of the carton 10. The direction of movement is that of the arrows shown in the carton in the respective views, namely to the left. It is assumed that there is present (but not shown) at some location on the conveyor, means to slightly adjacent packages from one another as they move along the said conveyor. For instance, the packages may have been glued, secured or otherwise worked upon prior to approaching the printing wheel and so they will be spaced apart along the conveyor approach to the printing and not necessarily at an equal distance. The carton printing apparatus with its synchronizing device is designated generally 16 and is mounted to a part of the frame 18 of the production or shipping line which includes the conveyor 12. As seen in FIG. 3, there is a printing wheel 20 which is mounted for rotation on a suitable pivoted plate 22 with the pivot at 24. The plate is biased to swing in a counter clockwise direction about the pivot 24 but its movement is limited by the fixed bracket member 26. This limited position places the printing wheel 20 at a level relative to the lateral face 28 of the carton 10 to which the imprint is to be applied such that the movement of the carton 10 along the line will carry the leading edge 30 into engagement with the printing wheel 20 possibly at the point on its circumference which is intersected by the larger of two rollers 32 and 34 idly mounted adjacent the circumference of the wheel 20. However, this point of initial contact with wheel 20 is not critical. For instance, the lead edge 30 of a carton may engage the peripheral edge of wheel 20 spaced from roller 34 and still cause initial rotation of the printing wheel. This point of intersection actually forms a notch thereat.

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In FIG. 3 the carton is approaching the printing wheel 20. In FIG. 1 it is shown engaged against roller 34. Now as the carton moves to the left, the wheel 20 is rotated with the movement of the carton, since the location of the roller 34 is such that it will otherwise block movement of the carton 10. The apparatus 16 is arranged so that when the condition illustrated in FIG. 3 obtains, the plane of the lateral side 28 will intersect the wheel 20 radially inward of the tangential point on the bottom thereof. Because of this, as the carton moves to the left from its position in FIG. 1, it must lift the wheel 20 and hence rotate the plate 22 slightly about the axis of the shaft 24 so that there is a slight pressure exerted to press the printing wheel 20 against the side surface 28 of the carton 10 during the movement of said carton past the apparatus. This will give a sharp imprint by the printing members, two of which are shown at 36 and 38 on opposite peripheral surfaces of the wheel 20.

The printing wheel 20 once lifted and driven in a rotational movement by the passage of the carton 10 overcomes the detent action of a cam and follower arrangement which will presently be described and follows the movement of the carton 10. Attention is invited to FIG. 4 in which the wheel 20 is shown rotated through about 150° from its position of FIGS. 3 and 1. The printing member 36 has already applied its imprint to the carton 10 and the printing member 38 is just coming around to do so.

This rotative movement of the wheel 20 continues while the carton 10 is passing until the first and smaller roller 32 is engaged upon the surface 28. The larger roller 34 follows. As soon as the larger roller 34 engages the surface 28, the wheel 20 can no longer rotate because the larger wheel's protruding segment extends a substantial portion beyond the circumference of the wheel 20. It is well within the concept of the invention that at the instant in which the smaller roller 32 engages the surface of the carton, the larger roller 34 likewise engages said surface. The wheel 20 may be moved up a slight amount at this point, but the two rollers 32 and 34 combine to provide means for preventing continued rotation of the wheel 20 while in rolling engagement with the carton 10. The carton readily rolls past the now relatively quiescent wheel 20. Any tendency for the wheel to rotate is prevented by the combined action of the rollers 32 and 34 which provide bearing points at two places on the passing carton 10 to maintain the position of the wheel 20. Although both rollers 32 and 34 have sufficient of their circumferences protruding beyond the periphery of the printing wheel 20 to enable rolling engagement, they are different in size so that their stable position in rolling engagement with the passing carton is as shown in FIG. 5, with the radius through the axis of the roller 34 at about 35° off from the vertical. By changing the location of their axes, the rollers 32 and 34 could be of the same size.

As the carton passes, the larger roller 34 drops off the carton as shown in FIG. 6 substantially in the initial position of the printing wheel shown in FIGS. 1 and 3 and ready for the passage of the next carton. The cycle continues.

In the above discussion, it has been assumed that the carton 10 has a length which is greater than the circumference of the wheel 20. Indeed, the invention is especially suited for such use. Since the wheel starts in the same position at every cycle, it is obvious that only a single imprint of the printing members 36 and 38 will be applied to the surface of the side 28, and also that this imprint will be applied at the same location, spaced rearward of the leading edge 30 of a carton. If the cartons were of different lengths, but each still longer than the circumference of the wheel 20, the imprints would still occur at the same position spaced from the leading edge 30 thereof. Obviously only one printing member need be used if only a single imprint is to be made, or more than two printing members may be used. The in-

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vention contemplates that one of the imprints may be a number whose value is consecutively changed by one digit for each revolution of the wheel 20. This may be accomplished by driving a consecutive numbering mechanism through the rotation of the printing wheel 20, as will be explained.

It is desired to point out that the invention contemplates that the cartons which pass the printing station where the apparatus 16 is located may be shorter in length than the circumference of the wheel 20. The cam and follower structure mentioned is provided to cause a fast return of the wheel 20 to the initial position of FIGS. 3 and 1 under such circumstances.

Referring now to FIGS. 1 and 2, the apparatus 16 has been partially described in connection with the explanation of the operation thereof. The apparatus may be supported as stated from a member 18 which is part of the frame of the conveyor 12 or other support surface adjacent the conveyor. A bracket such as at 40 may be bolted to the frame 18 and have the shaft or standard 24 clamped thereto. The standard has the bracket 26 clamped to its outer end by suitable clamping means 42 engaging with the lateral extension 44 of the bracket 26 by the screws 46. The plate 22 is rectangular, and is provided with a suitable perforation (not shown) engaged over a sleeve 48 and clamped thereto by a pair of nuts 50 screw-threaded onto the sleeve so that the entire plate can rotate with the sleeve 48 on the shaft 24. Axial movement of the sleeve along the shaft 24 is prevented by the collar 52 and the clamp 42.

The plate 22 has the arcuate cam-follower member 54 pivotally mounted on the stud 56 secured on plate 22. One end 58 of member 54 is connected by the spring 60 to the stud 62 to bias the cam-follower to move in a counter clockwise direction about the stud 56. This tends to press the end 64 into engagement with the cardioid-like cam 66 that is secured to the shaft 25 for rotation with the wheel 20. The shaft 25 is secured to the plate 22 by any suitable means such as the nuts and washers shown at 68 and the wheel 20, cam 66 and the disc 70 may all be mounted on a sleeve such as that shown at 48 for rotation on the shaft 25. Any other suitable means for securing the wheel 20, cam 66 and disc 70 for rotation together may be used.

The disc 70 mounts the two rollers 32 and 34 spaced from the wheel 20 so that there will be as little interference as possible with the wheel. The wheel 20 rotates in engagement with an inking wheel 72 the peripheral absorbent rubber member 74 of which is impregnated with suitable ink to be transferred to the printing members 36 and 38. The inking wheel 72 rotates on a shaft 76 mounted on a small plate 78 which in turn is secured to the plate 22 at 80 so that the pressure of the inking wheel 72 against the printing wheel may be adjusted.

The bracket 26 has a laterally extending arm 82, the free end of which is connected with the stud 86 on plate 22 through a strong spring 84. The bottom edge of the plate 22 engages against the arm 82 to limit rotative movement of plate 22.

The rotation of the wheel 20 will carry the cam 66 with it and when somewhat more than a half rotation has occurred, the portion 88 will commence to engage the end 64 of the follower. Thereafter, the pressure of the follower tends to force the cam to move quickly to the position shown in FIG. 1, with the follower engaged against the two points 90 and 92 of the cam, which is a quiescent position, and is defined as the initial position as illustrated in FIGS. 3 and 1. Of course, the wheel 20 also will be rotated to its initial position.

The construction of the printing wheel 20 may be in accordance with the teachings of U.S. Patent 2,634,676 issued April 14, 1953, and that of the inking wheel in accordance with the teachings of U.S. Patent 2,562,627 issued July 31, 1951. Any other suitable structures may be used.

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In FIG. 7, there is illustrated the top plan view of a printing wheel of modified construction which is designated generally 120 and which may be substantially the same as the wheel 20 except that it contains a consecutive numbering device 122 therein. The printing members 36 and 38 are shown but in addition there is another printing area in which the numbered characters of the numbering device 122 protrude, this being designated 124. Numbering devices usually operate by means of a rocking cyclic movement. For example, in the device 122 it is required that a shaft 126 be rotated about 75° back and forth for each digit of change. This would have to be done for each revolution of the wheel 120.

The shaft 25 which mounts the wheel is fixed and the wheel 120 rotates relative thereto. A collar 128 with an extension 130 having an eccentrically located pin 132, is secured to the end of the shaft 25. A link 134 is secured to the outer end of the shaft 126 and a slot 136 is provided along the length of the link 134 making a lost-motion connection with the pin 132. The required rocking movement can best be visualized in FIG. 7 by assuming that the wheel 120 is fixed and the shaft 25 with its eccentric extension rotate. From the position shown, if the eccentric extension 130 rotates clockwise, as shown by the arrows 140 first the link 134 will swing to the left and as soon as the pin 132 has rotated about 90° the link will swing to the right. It will continue to swing to the right until the pin 132 is about opposite to its position in FIG. 7, after which it will once more swing to the left.

Translated into the actual movement, which comprises the wheel 120 rotating on the shaft, where will be one back and forth swinging cycle of the link 134 with each revolution of the wheel, and this is sufficient to operate the consecutive numbering device. More particularly, referring to FIG. 8, the shaft 126 has a bevel gear 142 fixedly mounted thereto. Bevel gear 142 meshes with a second beveled gear 144 mounted so as to drive a train of spur gears designated at 146. Rotation of the said gears causes the marking or numbers 124 to advance one number for every revolution of the wheel 120. The numbering system 124 has a one-way advancing pawl and ratchet system well known in the art. It should be appreciated that this described structure is merely an example, since there are many different kinds of numbering devices that can be associated with the printing wheel and operated thereby.

It is believed that the invention should be fully understood and appreciated from the above detailed description, but it is not intended to be limited thereby. The scope of the invention is broader than indicated by the specific examples set forth in compliance with the patent laws, and limited only by the claims which follow hereinafter.

What is desired to secure by Letters Patent of the United States is:

1. A synchronizing device for a printing mechanism for printing indicia upon packages moving along a conveyor past said mechanism whereby said indicia is applied to a common surface of each package at an identical location spaced from the leading edge thereof regardless of the length of said packages and said mechanism has a printing wheel, indicia printing means on the peripheral edge of said wheel and means for urging the printing wheel periphery into engagement with said surfaces as said packages pass said mechanism; said synchronizing device comprising roller means rotatable in unison with said printing wheel, detent means cooperating with said wheel and defining therewith an initial rotative disposition relative to said conveyor whereby the said surface of each of said packages will commence rolling engagement with said wheel from said initial position as its said leading edge engages with said wheel, said roller means comprising a pair of rollers disposed adjacent of and extending beyond the peripheral edge of said wheel into the path of said moving packages and adapted when said wheel is so

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initially disposed to be rotated with said wheel to a second rotative disposition in which said roller means engage said surface and roll relative thereto without rotative movement of said wheel until said surface has passed, said detent means thereafter acting to move said wheel to said initial disposition.

2. A structure as claimed in claim 1 in which said detent means includes a quick return mechanism for moving said wheel to said initial disposition immediately following the passing of a surface whose length is less than the circumferential distance along said wheel from said initial to said second rotative disposition.

3. A structure as claimed in claim 2 in which said quick return mechanism comprises cardioid-like cam mounted for rotation with said printing wheel, an elongate cam-follower cooperatively engaged with said cam and actuating means for both cam and cam follower so as to rotate said wheel quickly to said initial rotative disposition.

4. A structure as claimed in claim 1 wherein one of said rollers is of greater diameter than the others, the larger of the rollers being adapted to first intersect the path traveled by the leading edge of a package whereby the wheel initially is rotated and the printing means placed in printing engagement with the surface of said package, whereupon thereafter said rollers simultaneously engage said surface, said rollers being freelyrollable upon said surface to prevent continued rotation of said wheel while said rollers are still engaged upon said surface, and said detent means includes a quick return mechanism for moving said wheel to said initial disposition immediately following the passing of said surface wherein the length thereof is less than the circumference distance along the wheel from said initial to said second rotative disposition.

5. In apparatus for applying an imprint on individual packages while moving spaced one from the other along a conveyor and past rotatably mounted printing means to receive said imprint at a substantially identical location with respect to the leading edge of each package considered in the direction of travel of the conveyor; a resiliently mountable printing wheel having a printing point on the peripheral edge thereof for applying the imprint to each package and rotatable by frictional engagement of the wheel with the package moving past the wheel, and means operative to synchronize the position of the printing point to apply the imprint to successive packages passing the printing wheel irrespective of the length thereof, said means including roller means bodily rotatable simultaneously with the printing wheel on a common axis, said roller means having bearing surfaces projecting beyond the periphery of the printing wheel and having a predetermined fixed spatial relationship with said printing point, said wheel being rotated by movement of each package past the same to apply said imprint, said roller bearing surfaces arranged to engage against a lateral surface of each passing package after application of the imprint thereto to prevent said printing wheel from making a complete revolution prior to the imprinted package passing the printing wheel and to place said printing point in proper position to apply said imprint to the next succeeding package on the conveyor after the imprinted package has moved past the printing wheel, and spring biased detent means engaged with said wheel and operative to return the printing point to said proper position in the event the length of the imprinted package is less than the perimeter of said printing wheel, said roller means comprising a pair of rollers, one roller projecting a greater distance beyond the periphery of the printing wheel than the second roller, said one roller adapted to be engaged by the leading edge of a package to initiate rotation of the printing wheel, said rollers arranged to engage the imprinted package in succession prior to a complete revolution of the printing wheel and freely roll while engaging said imprinted package.

6. In apparatus for applying an imprint on individual

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packages while moving spaced one from the other along a conveyor and past rotatably mounted printing means to receive said imprint at a substantially identical location with respect to the leading edge of each package considered in the direction of travel of the conveyor; a resiliently mountable printing wheel having a printing point on the peripheral edge thereof for applying the imprint to each package and rotatable by frictional engagement of the wheel with the package moving past the wheel, and means operative to synchronize the position of the printing point to apply the imprint to successive packages passing the printing wheel irrespective of the length thereof, said means including roller means bodily rotatable simultaneously with the printing wheel on a common axis, said roller means having bearing surfaces projecting beyond the periphery of the printing wheel and having a predetermined fixed spatial relationship with said printing point, said wheel being rotated by movement of each package past the same to apply said imprint, said roller bearing surfaces arranged to engage against a lateral surface of each passing package after application of the imprint thereto to prevent said printing wheel from making a complete revolution prior to the imprinted package passing the printing wheel and to place said printing point in proper position to apply said imprint to the next succeeding package on the conveyor after the imprinted package has moved past the printing wheel, and spring biased detent means engaged with said wheel and operative to return the printing point to said proper position in the event the length of the imprinted package is less than the perimeter of said printing wheel, said roller means comprising first and second rollers, the second roller being larger in diameter than the first roller, said second roller being engaged by the leading edge of the package to be imprinted to initiate rotation of the printing wheel, said first roller mounted to engage the imprinted package after the second roller, both rollers being freely rollable when engaging said imprinted package.

7. In apparatus for applying an imprint on individual packages while moving spaced one from the other along a conveyor and past rotatably mounted printing means to receive said imprint at a substantially identical location with respect to the leading edge of each package considered in the direction of travel of the conveyor; a resiliently mountable printing wheel having a printing point on the peripheral edge thereof for applying the imprint to each package and rotatable by frictional engagement of the wheel with the package moving past the wheel, and means operative to synchronize the position of the printing point to apply the imprint to successive packages passing the printing wheel irrespective of the length thereof, said means including roller means rotatable simultaneously with the printing wheel on a common axis, said roller means having bearing surfaces projecting beyond the periphery of the printing wheel and having a predetermined fixed spatial relationship with said printing point, said wheel being rotated by movement of each package past the same to apply said imprint, said roller bearing surfaces arranged to engage against a lateral surface of each passing package after application of the imprint thereto to prevent said printing wheel from making a complete revolution prior to the imprinted package passing the printing wheel and to place said printing point in proper position to apply said imprint to the next succeeding package on the conveyor after the imprinted package has moved past the printing wheel.

8. In apparatus for applying an imprint on individual packages while moving spaced one from the other along a conveyor and past rotatably mounted printing means to receive said imprint at a substantially identical location with respect to the leading edge of each package considered in the direction of travel of the conveyor; a resiliently mountable printing wheel having a printing point on the peripheral edge thereof for applying the imprint to each package and rotatable by frictional en-

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gagement of the wheel with the package moving past the wheel, and means operative to synchronize the printing point to apply the imprint to successive packages passing the printing wheel irrespective of the length thereof, said means including roller means rotatable simultaneously with the printing wheel on a common axis, said roller means having bearing surfaces projecting beyond the periphery of the printing wheel and having a predetermined fixed spatial relationship with said printing point, said wheel being rotated by movement of each package past the same to apply said imprint, said roller bearing surfaces arranged to engage against a lateral surface of each passing package after application of the imprint thereto to prevent said printing wheel from making a complete revolution prior to the imprinted package passing the printing wheel and to place said printing point in proper position to the next succeeding package after the imprinted package has moved past the printing wheel, and a consecutive numbering device and means for actuating said numbering device for each printing cycle.

9. The device as claimed in claim 8 in which said consecutive numbering device is disposed in a fixed spatial relationship to both said roller means and said printing point selected to simultaneously synchronize the locations of both the imprint and the number applied with the length of the package irrespective of the length of the package.

10. The device as claimed in claim 8 in which said consecutive numbering device is carried upon said printing wheel and has a fixed spatial relationship to both said roller means and said printing point selected to simultaneously synchronize the locations of both the imprint and the number applied with the length of the package irrespective of the length of the packages, and said means for actuating the said consecutive numbering device comprise a lost motion rocking linkage.

11. The device as claimed in claim 8 in which there are detent means cooperating with said printing wheel to rotate the printing means automatically to return to said proper position in the event the length of the printed package is less than the perimeter of the printing wheel and prior to the leading edge of the successive package causing the initial rotation of the printing wheel.

12. The device as claimed in claim 8 in which there are detent means cooperating with said printing wheel to rotate the printing means automatically to return to said proper position in the event the length of the printed package is less than the perimeter of the printing wheel and prior to the leading edge of the successive package causing the initial rotation of the printing wheel, said roller means including a disc having roller members mounted thereon, said roller members carrying said bearing surfaces, and the disc is mounted for rotation with the printing wheel on a common axis, and said detent means includes a rotatable cam and a cam-follower in biased engagement with said cam, being connected to the printing wheel to effect rotation of the wheel upon rotation of the cam.

13. In a consecutive numbering device adapted to imprint consecutive numbers upon individual packages, means defining a single linear path of movement for said packages whereby the packages move along a straight line path spaced one from the other, mounting means, a resiliently and rotatably mounted number-imprinter carriage means carried by said mounting means and disposed in said path and the packages being moved past said carriage means to receive said imprint of a number in succession on a face of each package at an identical location with respect to the leading edge of each package considered in the direction of travel along said linear path, said number-imprinter carriage means including a pair of spaced coaxially arranged wheel members each having a peripheral traction surface thereon for engaging said packages to rotate the carriage means concurrently with movement of the packages along said path, number-printing

means mounted within said carriage means and said number-printing means being bodily rotatable with said carriage means, said number-printing means including a plurality of co-axially mounted numbering wheels arranged consecutively with respect to each other and each having a printing surface arranged consecutively to extend beyond the periphery of said carriage means and adapted to apply the imprint thereof to each package consecutively, an actuating member, actuating linkage means for actuating said actuating member to successively rotate said numbering wheels and operable only upon rotation of said carriage means via said traction surfaces, roller means axially mounted on said coaxially arranged wheel members for rotation on its axis independently of said wheels but capable of movement with the carriage means, said roller means protruding beyond said traction surfaces and initially engageable with the leading edge of a package to initiate rotation of said carriage means thereby to engage the peripheral traction surfaces thereof with the face of the package to maintain the rotation of said carriage means during movement of the package to apply said imprint, said roller means further operative to disengage said traction surfaces from said face prior to a full revolution of the said carriage means when the length of the imprinted package is greater than the circumference of said coaxially arranged wheels, and means for returning the carriage means to its initial position when the length of the imprinted package is either less or greater than the circumference of the said coaxially arranged wheels whereby the location of the said number imprint is identical independent of the length of the face of each of the packages successively imprinted, said means for returning the carriage means to its initial position comprising detent means cooperating with said carriage means to rotate the same automatically whereby to return said carriage means to its initial position prior to the leading edge of the next successive package engaging with said roller means causing initial rotation of the said carriage means.

14. The apparatus as described in claim 13 in which said detent means includes a rotatable cam and cam-follower in biased engagement with said cam, said cam being connected to the carriage means to effect rotation of same upon rotation of the cam.

15. In apparatus for applying a consecutive numbered imprint on individual packages moving spaced one from the other along a conveyor and past rotatably mounted printing means to receive the imprint at a substantially identical location with respect to the leading edge of each package considered in the direction of travel of the conveyor; a resiliently mountable carriage, said carriage comprising a pair of spaced, co-axially mounted wheel members, a consecutive numbering device adapted to be mounted between said pair of wheel members and adapted to be bodily rotatable with said wheel members, said numbering device including a plurality of co-axially arranged numbering wheels arranged consecutively with respect to each other and each having printing means arranged consecutively to extend from the periphery of said pair of wheel members, means including an actuating member for successively actuating said numbering wheels to rotate same thereby to place the printing means of each numbering wheel consecutively in position extending from the periphery of said pair of wheel members, and an actuating linkage means to actuate said actuating member and operable only upon rotation of said pair of wheel members, said wheel members having a peripheral traction surface adapted to frictionally be engaged by each of said packages to rotate said wheel members as said packages move past said wheel members, and means operative to synchronize the position of said printing means to apply each successive numbered imprint to successive packages passing the wheel irrespective of the length thereof, said means including roller means rotatable simultaneously with wheel members on a common

axis, said roller means having bearing surfaces projecting beyond the periphery of said wheel members and having a predetermined fixed spatial relationship with said printing means, said wheel members being rotated by movement of each package past the same to apply the said numbered imprint, said roller bearing surfaces arranged to engage against the lateral surface of each passing package after application of the numbered imprint thereto to prevent said wheel members from making a complete revolution prior to the imprinted package passing said wheel members, and place said printing means in proper position to apply said next consecutive numbered imprint to the next succeeding package on the conveyor after the imprinted package has moved past the said wheel members.

16. In apparatus for applying an imprint on individual packages while moving spaced one from the other along a conveyor and past rotatably mounted printing means to receive said imprint at a substantially identical location with respect to the leading edge of each package considered in the direction of travel of the conveyor; a resiliently mountable printing wheel having a printing point on the peripheral edge thereof for applying the imprint to each package and rotatable by frictional engagement of the wheel with the package moving past the wheel, and means operative to synchronize the position of the printing point to apply the imprint to successive packages passing the printing wheel irrespective of the length thereof, said means including roller means bodily rotatable simultaneously with the printing wheel on a common axis, said roller means having a bearing surface projecting beyond the periphery of the printing wheel and having a predetermined fixed spatial relationship with said printing point, said wheel being rotated by movement of each package past the same to apply said imprint, said roller bearing surface arranged to engage against a lateral surface of each passing package after application of the imprint thereto to prevent said printing wheel from making a complete revolution prior to the imprinted package passing the printing wheel and to place said printing point in proper position to apply said imprint to the next succeeding package on the conveyor after the imprinted package has moved past the printing wheel, and said roller means comprise a pair of rollers mounted for rolling rotation independently of the printing wheel on axes parallel with and spaced from said common axis, said rollers arranged in said fixed spatial relationship to engage the surface of an imprinted package in succession and freely roll thereon while the imprinted package is passing the printing wheel.

17. A synchronizing device for a printer wheel having printing means on the peripheral edge thereof to apply successive imprints to co-planar surfaces of packages moving in a line along a conveyor and at a substantially corresponding location from the leading edge of each package: said device comprising, a printing wheel, roller means mounted for bodily rotation in unison with said printing wheel and rolling rotation independently of the printing wheel parallel with and spaced from the axis of rotation of the printing wheel, said roller means having bearing surface means extending beyond the peripheral edge of the wheel and in fixed spatial relationship with and in front of said printing means, said printing wheel and roller means intercepting the path of movement of the packages so that the leading edge of an approaching package initially will cause said printing wheel to be rotated into frictional engagement with said approaching package to apply said imprint, said printing wheel thereafter being rotatable to bring said roller means into rolling engagement with the printed package surface after the imprint has been applied to prevent said printing wheel from making a complete revolution as each printed package moves past the printing wheel, and to return said wheel to a position to be intercepted by a successive package with said printing means in proper position to apply

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said imprint to said successive package after the printed package has passed the printing wheel, and said roller means includes a plate member having roller members rollably mounted thereon and the plate member is mountable for rotation with the printing wheel on a common axis.

18. A synchronizing device for a printer wheel having printing means on the peripheral edge thereof to apply successive imprints to co-planar surfaces of packages moving in a line along a conveyor and at a substantially corresponding location from the leading edge of each package; said device comprising, a printing wheel, roller means mounted for bodily rotation in unison with said printing wheel and rolling rotation independently of the printing wheel on axes parallel with and spaced from the axis of rotation of the printing wheel, said roller means having bearing surface means extending beyond the peripheral edge of the wheel and in fixed spatial relationship with and in front of said printing means, said printing wheel and roller means intercepting the path of movement of the packages so that the leading edge of an approaching package initially will cause said printing wheel to be rotated into frictional engagement with said approaching package to apply said imprint, said printing wheel thereafter being rotatable to bring said roller means into rolling engagement with the printed package

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surface after the imprint has been applied to prevent said printing wheel from making a complete revolution as each printed package moves past the printing wheel, and to return said wheel to a position to be intercepted by a successive package with said printing means in proper position to apply said imprint to said successive package after the printed package has passed the printing wheel, detent means cooperating with said printing wheel to rotate the printing means automatically to said proper position in the event the length of a printed package is less than the perimeter of the printing wheel and prior to the leading edge of the successive package causing said initial rotation of the printing wheel, and said roller means includes a disc having roller members mounted thereon and the disc is mounted for rotation with the printing wheel on a common axis, and said detent means includes a rotatable cam and cam-follower in biased engagement with said cam, said cam being connected to said printing wheel to effect rotation of the wheel upon rotation of the cam.

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