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INKING DEVICE FOR PRINTING MACHINES HAVING
A PIVOTALLY MOUNTED INKING WHEEL
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Fig. 1

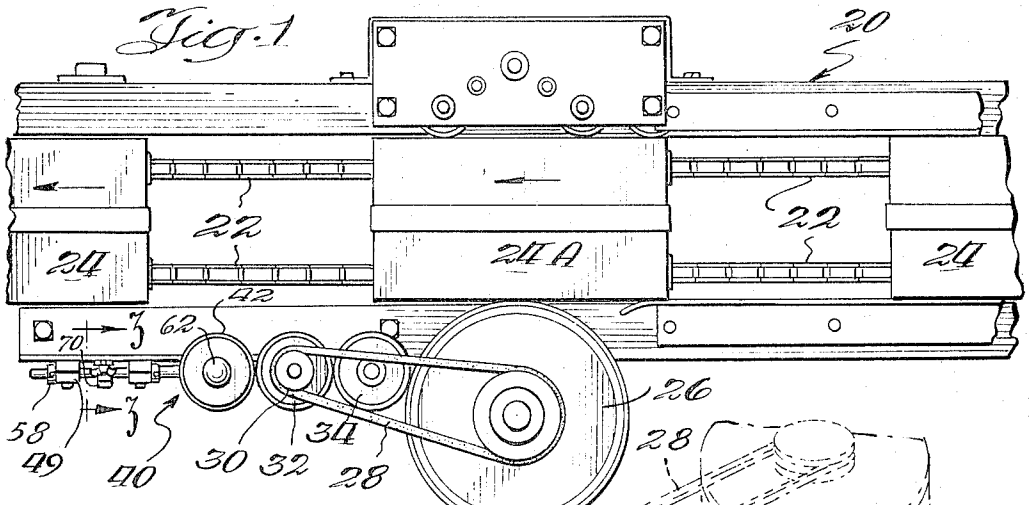


Fig. 2

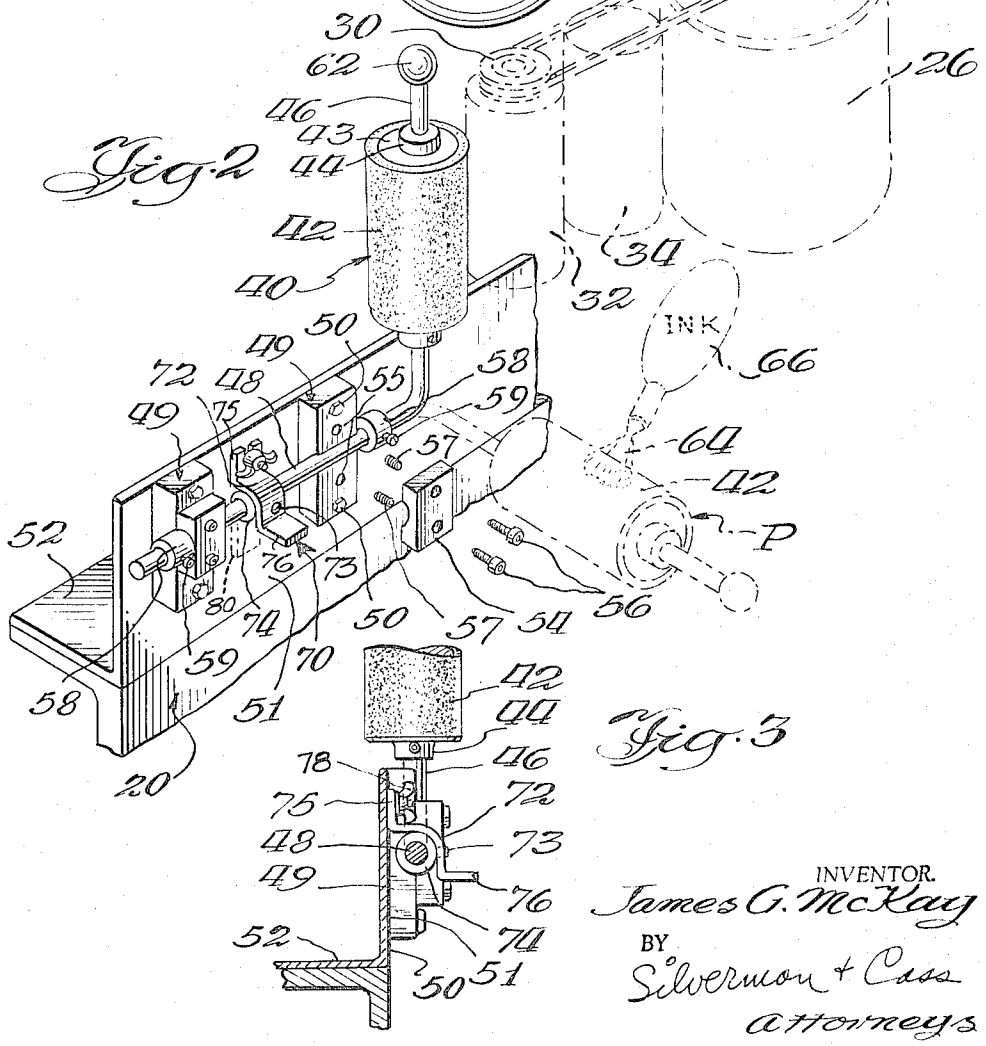


Fig. 3

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INKING DEVICE FOR PRINTING MACHINES HAVING A PIVOTALLY MOUNTED INKING WHEEL

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This invention relates generally to inking devices and more particularly, relates to improvements in rotary inking devices for rotary marking devices such as code dating, price marking, symbol coding or identification apparatus.

A rotary inking device of the general type with which the invention is concerned is widely used in connection with automatic marking apparatus operative with a conveyor system which transports containers or packages in a continuous line past a printing station on such equipment so as to be marked at a selected location thereon. The inking device is positioned to transfer ink through a train of ink transfer rollers to a rotating printing device continuously as the printing device rotates. Marking systems such as are appropriate for cooperative use of such inking devices are disclosed in my U.S. Letters Patent, Nos. 3,035,515, 2,735,678 and 2,701,519, and printing devices are disclosed in my U.S. Letters Patent, Nos. 2,890,654 and 2,562,627, for instance.

This invention eliminates certain problems attendant the proper inking of a rotating printing wheel during operation of the package imprinting system. The inking wheel or device has a large reservoir for ink in the form of a disc or cylinder of cellular, porous material, such as sponge or foam rubber. Ink transfer from this device occurs at the circumference of the rubber disc or cylinder upon physical engagement with another rotating body contacting the same, such as an ink transfer roller. Notably, the sponge or foam rubber inking disc or cylinder must be loaded with ink. Loading of such a sponge rubber ink reservoir at its center has not always permitted the ink to be fed from the peripheral surfaces thereof uniformly and consistently for proper inking. Consequently and especially in the case of the elongate sponge rubber cylinder, it is preferred to supply ink to the inking device at the circumference thereof. Previous structures have required stopping of the code dating apparatus for replenishing the inking device in this fashion, and this has not been encouraged. Consequently, previous inking devices employed elaborate means for supplying ink to the inking device for transfer from the periphery thereof to another member rotating in contact with said inking device.

Another consideration has been the vertical axial orientation of such an inking device, as in the case of side marking of packages, which did not provide for convenient access to the circumference thereof for applying ink while the machine was in operation. To apply ink in this fashion to the circumference of the inking device while the machine was operating also courted splattering of ink with attendant disadvantage. Consequently, the machine was shut down periodically for replenishing ink supply of the inking device.

Accordingly, a primary object of the invention is to provide an inking device which will substantially eliminate the foregoing as well as other disadvantages of prior structures.

An important object of the invention is to provide an inking device of the character described to which ink can be supplied from the periphery or circumference thereof during continued operation of the code dating or marking equipment with which same is assembled.

Another object of the invention is to provide an inking device as described which can be supplied ink from a simple squeeze bottle, for instance, at selected locations along the circumference of the inking device so that better regulation of the amount of ink supplied and the locations at which it is supplied is achieved with resulting improved economy and efficiency.

Another object of the invention is to provide an inking device as described which can be moved selectively from its normal operation position to a position offset from its operating position in the marking equipment for supplying ink thereto and then, returned to its normal operating position in the equipment all without stopping the code dating equipment or dissembling the inking device embodying the invention.

Another object of the invention is to provide an inking device of the character described which can be applied substantially universally to code dating apparatus without undue modification and attendant expense and which includes means for returning same automatically to its normal operation position in the imprinting apparatus and retaining the same in that position.

Other objects will become apparent from the ensuing description, such as, economy of manufacture, simplicity of installation and use, and the sturdy character of the construction thereof, all from the detailed preferred embodiment disclosed herein. Minor variations may occur to the skilled artisan without departing from the scope or sacrificing any of the advantages thereof.

In the drawing:

FIG. 1 is a fragmentary top plan view of a representative package imprinting machine having the inking device embodying the invention installed thereon.

FIG. 2 is a perspective view of the inking device embodying the invention and shown diagrammatically in normal operating position in the installation thereof in FIG. 1 and by phantom outline in said offset position for supplying ink thereto.

FIG. 3 is a fragmentary sectional view taken along the line 3—3 of FIG. 1 and in the general direction indicated.

Referring now to the drawing, the reference character 20 represents generally a package imprinting apparatus, of the general type shown and described in my Patent No. 3,035,515. The apparatus 20 has a conveyor represented by the chain reaches 22 along which packages 24 are transported in the direction of the arrows in a continuous line past a printing station for marking. The printing station is represented by the rotary printing wheel 26 which is driven by the pulley belt 28. Note that the pulley belt 28 is looped over the pulley wheel 30 associated with an ink transfer roller 32. The periphery of roller 32 rolls on the periphery of the ink transfer roller 34 which, in turn, rolls in engagement with the printing face of the printing wheel 28. Conventionally, the rollers 32 and 34 in their illustrated cooperation one with the other are in a train of transfer rollers for supplying ink to the printing wheel 26, the precise number of said ink transfer rollers capable of being varied. The exact manner of mounting and driving the printing wheel 26 and the train of transfer rollers 32 and 34 on or near the machine 20 is not material to this invention and can vary considerably. The printing system illustrated in FIG. 1 is for side marking of packages.

As seen in FIG. 1, there is a package 24A disposed opposite the printing wheel 26 for receiving an imprint therefrom, this location of the package 24A being at the printing station of the apparatus 20. Note that the axes of rotation of the printing device 26 and the transfer rollers 32 and 34 are parallel and vertically oriented considering the direction of movement of the packages 24 and 24A as being from right to left in FIG. 1 and along a horizontal plane.

The inking device embodying the invention is designated generally by the reference character 40. Said

device includes a sponge or foam rubber inking cylinder **42** carried on a sleeve **43** in a well-known manner. The sleeve **43** is rotatable freely on bushings **44** fixed in position desired by set screws **45** on one leg **46** of an L-shaped rod, the second leg of which is designated **48**. The leg **48** serves as a shaft which is journalled for pivotal movement in bearings provided by the spring-loaded pillow blocks **49** secured by bolts **50** to the outside surface **51** of an angle iron **52** which forms a top side rail of the machine **20** adjacent its conveyor. Each pillow block has an associated clamp plate **54** with openings therein aligned respectively with the countersunk and threaded holes **55** in the block for receiving the studs **56**. Each stud **56** has the shank thereof passed through a spring **57** located between the plate **54** and its associated block in a seat afforded by the hole **55** so that the clamp plate is secured to the block for frictionally retaining the shaft **48** in place albeit, normally spring-biased outwardly to permit the shaft **48** to be rotated selectively. However, to prevent sliding movement of the shaft **48** relative to the pillow blocks, the shaft mounts a pair of collars **58** fixed in place on said axle by the bolts **59**. The collars **58** are arranged each to abut an outside face of the pillow block adjacent thereto in the nature of a stop to prevent axial sliding movement of the shaft **48**. Yet, the collars **58** are adjustable in their locations along the shaft **48** to permit moving the inking cylinder **42** linearly, as will be readily understood.

As seen in FIG. 2, the inking device **40** is installed so that the cylindrical sponge or foam rubber inking cylinder **42** shown in solid outline has its circumference in contact with the circumference of the ink transfer roller **32**. This is the normal operating position of the inking device and as the roller **32** is driven, the inking roller **42** is rotated freely in frictional contact with the roller **32** to transfer ink to the circumference thereof. Note that the leg **46** serves as an axle upon which the inking roller **42** is freely rotatable and is parallel to the axis of rotation of the roller **32** which is vertically oriented. Yet, shaft **48** is transverse to the axle **46** so that axle **46** in turn is pivotal on an axis transverse to its longitudinal axis.

To replenish the ink supply of the inking roller **42** while so vertically oriented and while the printing machine is operating is not convenient or efficient or easy for obvious reasons. The invention however enables the inking cylinder **42** to be pivoted or rotated to a position offset from the normal operating position thereof. This is accomplished by grasping the knob **62** at the protruding end of the axle **46** and pivoting the entire assembly **40** to the dotted or phantom line position thereof designated P in FIG. 2. This is possible because the shaft **48** is pivotal in the bearings provided by the spring-loaded pillow blocks **49**. The position P has the axle **46** on which cylinder **42** rotates horizontally oriented or offset from the normal vertically oriented axial position of the cylinder **42** in its operating position. In this position P, ink **64** can be applied along the circumference of the cylinder **42** at selected locations from a squeeze bottle **66**. Noteworthy here is that the amount of ink applied to the circumference of the cylinder **42** can be regulated. Also, inking is accomplished without interfering with normal operation of the machine **20** since the transfer rollers **32** and **34** normally carry sufficient ink to supply the printing wheel **26** until the inking cylinder **42** is returned to its normal operating position suitably replenished. The rubber of the cylinder **42** absorbs the ink rapidly so that the cylinder **42** is in the retracted position P for only a relatively short period of time.

The means designated generally by the reference character **70** in FIG. 2 serve to hold the inking device **40** in its normal operating position yet permit release thereof for movement to the second or offset position for replenishing the ink supply thereof. Said means **70** comprises a curved clamping plate **72** which is secured by set screw **73** over the collar **74** on the axle **48** at a location between

the pillow blocks **49**. The curved plate **72** has a pair of wings or flanges **75** and **76** one at each extremity thereof. The flanges **75** are perpendicular one relative to the other. The flange **75** is bifurcated for passing a threaded stud **77** therethrough upon which can be engaged the wingnut **78**. The stud **77** can be mounted on the surface **51** to pass through the bifurcated flange **75** and mount the wingnut **78** for locking the device **40** in its normal operating position. By removing the wingnut, the assembly **40** can be pivoted outwardly and downwardly to position P where the flange **76** will abut surface **51** as indicated by the dotted outline **80** in FIG. 2. Here, the flange **76** cooperates with the rail **52** to stop or limit pivotal movement of the assembly **40** to the position P of inking cylinder **42**.

The invention also contemplates that the knob **62** can be removable so that a depleted inking cylinder can be removed and replaced with a freshly inked one without shutting down the printing apparatus.

In its broad context, the invention provides an attachment device for supplying ink to a rotary printing device. The attachment device is identified generally by reference character **40** in the detailed embodiment disclosed. Variations in details of construction and ways of mounting may occur to the skilled artisan albeit retaining the functional requirements of the component parts in their cooperative arrangement described and illustrated herein. For instance, some other means **70** for locating the device **40** in its normal operative position and in its offset position P may satisfy the need satisfied by the specific means **70**. The axial orientation of the cylinder **42** in its several positions may vary without altering the functional requirements satisfied by the invention. Consequently, the claims hereto appended should be accorded a liberal interpretation and construction commensurate with the invention achieved.

I claim:

1. In a rotary printing apparatus for marking individual packages moving in a line past a rotary printing member, a rotary inking device for mounting on the apparatus comprising, an inking wheel including a cylindrical body of cellular porous material, a unitary axle member having said inking wheel mounted thereon in a first position for rotation on an axis substantially parallel to the axis of rotation of the printing member for affecting ink transfer from the circumference of the wheel during rotation thereof, spring-loaded journal-bearing members adapted to be installed on the apparatus having said axle member pivotally mounted thereon for selective movement of the inking wheel to a second position wherein the axis of rotation of the inking wheel is transverse to the axis of rotation of the printing member and the wheel is offset from the ink transfer position thereof relative to the printing member, and stop means secured to and movable with said axle member to abut said apparatus for preventing movement of said inking wheel past either one of said two mentioned positions thereof, said axle member comprising a substantially L-shaped member having the inking wheel mounted on one leg thereof and the second leg mounted on said bearing members, said stop means comprising a clamping plate secured to said axle member having a flange portion at opposite ends thereof arranged to be selectively engaged against the apparatus for preventing such movement of the inking wheel.

2. The device as described in claim **1** in which there are adjustable collar means mounted on the second leg engageable with said bearing members for preventing linear movement of said axle member relative to said bearing members.

3. A rotary inking device for package marking apparatus employing a rotary printing member for marking packages in succession and at least one ink transfer roller in surface engagement with said printing member, said inking device including an absorbent rubber-like cylinder

for storage of ink and subsequent transfer of the ink upon contact of said ink transfer roller with the circumference of the cylinder, a unitary axle member mounting said cylinder for rotary movement thereon, and spring-loaded pillow block members for frictionally mounting said axle member on said apparatus against inadvertent rotation of said axle albeit to permit selective pivotal movement of the cylinder between a first position wherein the axis of rotation of the cylinder and said roller are parallel and said cylinder and roller are circumferentially engaged one with the other and a second position wherein the axis of rotation of the cylinder is transverse to the axis of rotation of the roller and the cylinder and roller are disengaged, and a stop member associated with said axle member and movable therewith for preventing pivotal movement of the cylinder beyond either of said two positions by selective engagement with said apparatus, said axle member being substantially L-shaped having said cylinder mounted on one leg thereof with the second leg of the axle mounted on the block members, said stop member comprising a curved clamping plate secured to said second leg having end flanges on opposite sides

of said second leg each arranged to abut said apparatus in one of said two positions.

4. An inking device as described in claim 3 in which said axle member is substantially L-shaped and has collar means adjustably secured on one leg thereof for engaging the block members to prevent linear movement of the axle member relative to said apparatus.

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