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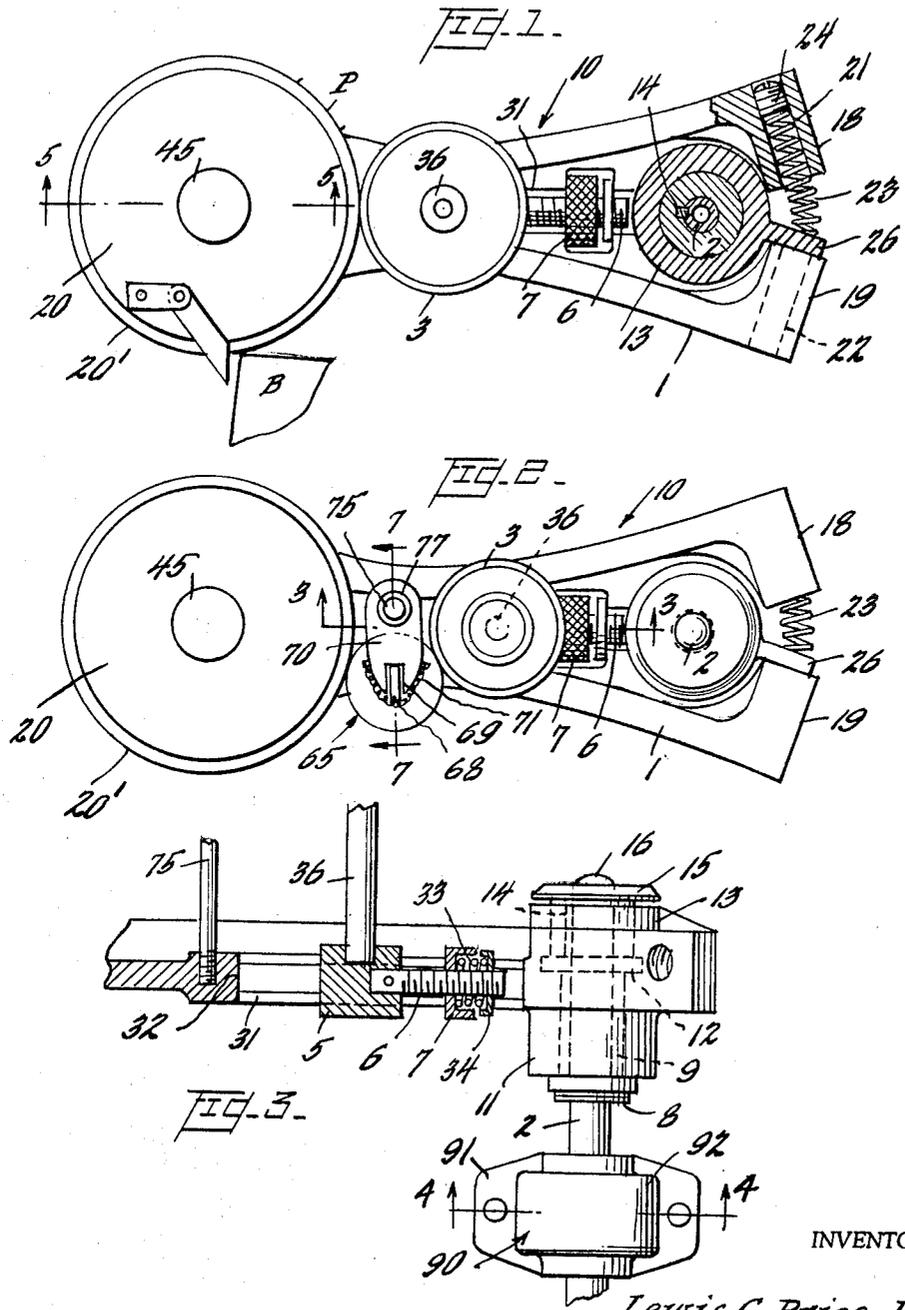
L. C. PRICE, JR

3,267,851

MARKING ROLL ASSEMBLY WITH INK REGULATING MEANS

Original Filed Nov. 22, 1963

2 Sheets-Sheet 1



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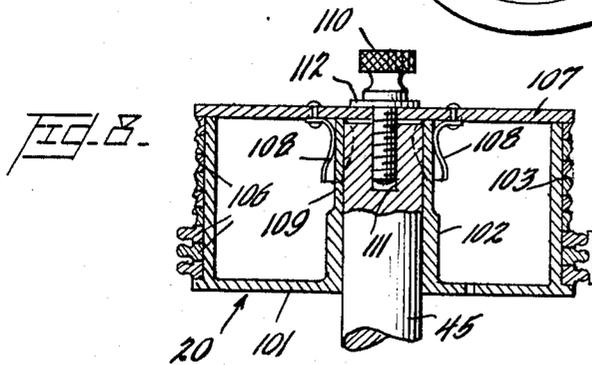
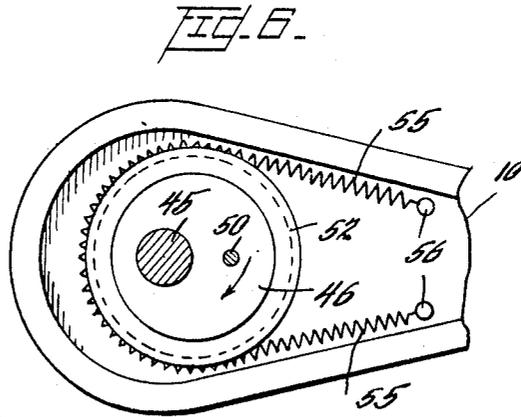
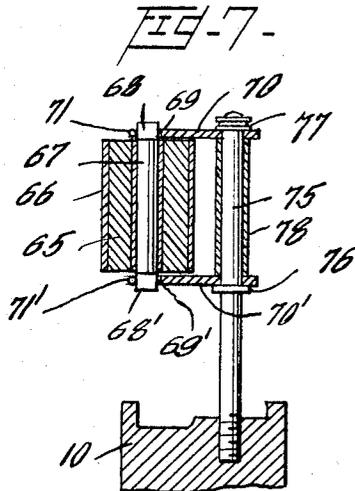
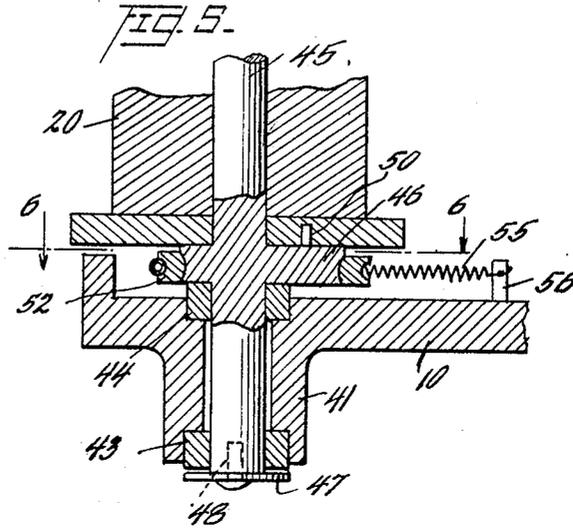
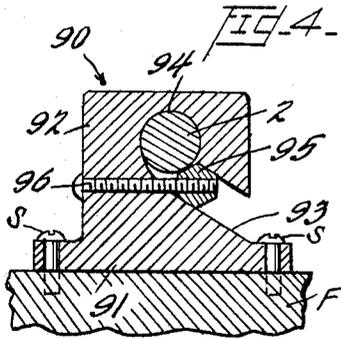
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MARKING ROLL ASSEMBLY WITH INK REGULATING MEANS

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2 Sheets-Sheet 2



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MARKING ROLL ASSEMBLY WITH INK REGULATING MEANS

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Original application Nov. 22, 1963, Ser. No. 325,713, now Patent No. 3,220,341, dated Nov. 30, 1965. Divided and this application Mar. 24, 1965, Ser. No. 442,312

6 Claims. (Cl. 101-329)

This invention relates to marking apparatus. In particular the invention is concerned with a novel printing roll and support assembly wherein the assembly may be practically universally used, regardless of the conditions existing at the place of such use. Such an assembly is disclosed in U.S. application Serial No. 325,713, filed November 22, 1963, now Patent No. 3,220,341, of which this present application is a division.

Prior marking roll assemblies have been subject to serious limitations because each has been designed for special application to any given individual problem. For example, the mountings used in previous structures required separate parts for either right- or left-hand operation. Further, adjustment of the inking roll relative to the printing roll involved cumbersome adjustments, best carried out by an experienced printer. Conversion of the printing system from one type of inking roll to another usually requires replacement of the entire assembly. These and other troublesome matters are overcome by the present invention which includes various novel features adapted to make the device herein disclosed adaptable to any given situation with an absolute minimum of manipulation, rearrangement of parts, or difficult adjustments.

Accordingly, an object of the invention is to produce a novel code marking assembly.

A further object of the invention is to provide a universal marking device.

Another object of the invention is to produce a marking assembly adaptable very simply to right- or left-hand operation.

Another object of the invention is to produce an inking roll system which through the use of interchangeable parts will adapt the system for use in almost every given condition at the printing roll.

Further, an additional object of the invention is to provide a unique mounting system for ink rolls whereby the pressure of the ink roll against the printing roll may be conveniently and quickly adjusted.

These and other objects of the invention not specifically referred to but, nonetheless inherent therein may be accomplished by providing a pivotally mounted arm, biasing said arm relative to a stationary supporting shaft at one end by means of a compression spring whereby the arm may be biased either in a clockwise or counterclockwise direction; the arm having mounted thereon a slide block actuated by means of a "floating" screw such that an inking roll mounted on the slide block may be moved toward and away from a printing roll carried by the opposite terminal end of the arm; while at the same time rearrangement of the inking roll printing roll system can be accomplished by providing a "floating" transfer roll between the inking roll and printing roll to accommodate the apparatus to various conditions of use which may be encountered in day to day operations.

The invention herein will be clearly understood by consideration of the following detailed description thereof, reference being made to the appended drawings, wherein,

FIG. 1 is a top plan view of the invention partly in section showing in detail the biasing means.

FIG. 2 is a view similar to FIG. 1 but showing a variation in the inking system,

FIG. 3 is a partial side sectional view taken along the line 3-3 of FIG. 2,

FIG. 4 is a sectional view of the mounting bracket shown in FIG. 3, taken along line 4-4 thereof,

FIG. 5 is a side sectional view taken along line 5-5 of FIG. 1,

FIG. 6 is a top plan view with certain parts removed of the reset mechanism taken along line 6-6 of FIG. 5,

FIG. 7 is an elevational sectional view taken along the line 7-7 of FIG. 2, and

FIG. 8 is a side sectional view of a printing roll constructed according to the invention.

Turning initially to FIGS. 1 and 2, it will be seen that there is provided an arm 10 having one end 1 pivotally connected, as will be described to a supporting standard 2. The opposite or free terminal end of arm 1 carries a printing roll 20 journaled for rotation thereon.

Midway between the terminal ends of arm 1, there is provided an inking roll 3. The roll 3 is mounted on a slide block 5 (FIG. 3) which is movable along the arm by means of a screw 6 which may be turned by means of a knurled operator 7.

The fixed end 1 of arm 10 is mounted on standard 2 so as to pivot relative thereto. Thus standard 2 is provided with a lock ring 8. A suitable "Oilite" or other bushing member 9 is placed on standard 2 and bears against the ring 8. The arm 10 is apertured and includes a trunnion 11 which in turn surrounds bushing 9. A further bearing member 12 in the form of a flat washer is placed on the standard 2 and it in turn is topped by a stop member 13 which is keyed at 14 to the standard 2 being held in place by a bolt and washer 15, 16 respectively.

Extending outwardly and rearwardly of the arm 10 are a pair of ear members 18 and 19 which are apertured horizontally at 21, 22 to receive a spring member 23 which is held in place at one end by a screw 24 threadedly engaged within the aperture 21 or 22 selectively. The opposite end of spring 23 bears against a tongue 26 which extends rearwardly from the stop member 13 and downwardly between the bifurcated ends 18, 19 of the arm 10. Thus, it may be seen, that as shown in FIG. 1 the spring 23 continuously biases the arm 10 in a counterclockwise direction such that pressure against printing roll 20 tending to move the arm 10 clockwise will be resiliently resisted by spring 23. Thus, firm, but yielding contact, is established between the printing cylinder 20 and, for example, an article B to be printed upon as it is conveyed to the left (as seen in FIG. 1).

When it is desired to change the assembly from right-to left-hand operation, the right-hand operation being illustrated in FIG. 1, then it is quite a simple matter merely to remove the screw 24, spring 23 from the ear 18 and insert same into aperture 22 in ear 19 whereupon the arm 10 will be biased in the opposite or clockwise direction. This arrangement completely eliminates the use of torsion springs as have been used in the past and also eliminates the necessity for stacking right and left-hand parts as also was and is customary in the case of torsion spring mountings.

Turning now to FIG. 3, along with FIG. 2, it will be seen that arm 10 at approximately its midpoint, is slit at 31 longitudinally intermediate its ends. The configuration of this opening 31 is generally cruciform so as to accommodate in freely rotatable relation screw member 6 and the operator 7 therefor. One end of screw member 6 is surrounded by a spring member 33 having one end confined within the interior of operator 7 and its opposite end bearing against a cup shaped washer 34 which is seated against the end wall of the cruciform aperture 31. The opposite end of the screw 6 is fixed as by insertion in to an aperture and pin fixed therein to a movable block 5, which has slotted sides so as to

be engaged by and slidable along the side walls of slot 31. Block member 5 in turn carries a spindle 36 adapted to receive inking roll 3 as will be described hereinafter. Thus as the operator 7 is turned the threaded engagement between itself and screw 6 will cause the screw and slide block to move longitudinally of arm 10 in whichever direction it is desired to move same. Because the jack screw 6 is floatingly mounted in arm 10 it will accommodate quite readily any misalignment which might exist between block 5 and the sides of slot 31 and thus the operation of the assembly is quite smooth and free from objectional bending of the block 5 or screw 6 noticeable in most such assemblies. Thus, also, the inking roll carried by spindle 36 can readily be moved toward and away from the printing cylinder 20 to assure correct pressure between the surface of the printing cylinder plates and the surface of the inking roll 3.

In addition to enabling adjustment of inking roll 3 relative to printing roll or cylinder 20 the slide arrangement permits of adaption of the apparatus to use with various sized cylinders 20 and further where, because of surface or other conditions encountered on the product to be marked, it is desired to use an indirect or transfer inking system as will be now described in connection with FIG. 2 of the drawings.

Turning again to FIGS. 1 and 2, it has been stated that these two figures show variations in the inking system which may be accommodated by the described assembly. Thus in FIG. 1 the inking roll 3 is directly in contact with the printing surface P while in FIG. 2, the ink is transferred from inking roll 3 to the printing roll 20 via an intermediate roll 65 which is mounted as shown in FIG. 7 for universal floating movement between the ink roll 3 and cylinder roll 20 to assure positive contact between its peripheral surface and the surfaces of these respective rolls. Thus, as shown in FIG. 7, intermediate roll 65, having a suitable ink receptive cover 66 is journaled for rotation on a shaft 67. Shaft 67 in turn is provided with squared or rectangular ends 68, 68' which ends rest in slots 69, 69' (see FIG. 2) provided at the terminal ends of bracket members 70, 70'. In order to retain the ends of the shaft 67 seated in the enlarged slots 69, 69' spring members 71, 71' are looped around the ends of bracket members 70, 70' and are fixed thereto by their ends at points removed inwardly toward the center of these brackets. Brackets 70, 70' are in turn carried rotatably on a spindle member 75, by suitable lock rings 76, 77 and spacer 78 interposed between them. Thus it will be seen that transfer roll 65 will be continually spring biased toward contact with the surfaces of rolls 3 and 20 and can move in almost any direction to accommodate for variations in roll surface or perhaps some vertical misalignment between spindle 36 and spindle 75.

As has been previously stated the entire assembly may be mounted on a frame such that printing of the desired matter on articles being conveyed or moved by the marker is obtained.

Thus in FIG. 3, the numeral F designates a frame of a conveyor or other apparatus which carries the articles to be coded and/or dated past the disclosed printing apparatus. As shown the apparatus is mounted on frame F by a suitable bracket assembly 90. Such manner of mounting is described, for example, in detail in my earlier application Serial No. 325,713, now U.S. Patent 3,220,341. As there described, for the purpose of mounting the standard 2 on such a frame, for example, there is provided a unique bracket 90, illustrated in FIGS. 3 and 4. This bracket includes a base portion 91 and an upstanding apertured clamping portion 92. The base 91 is fixed to frame F by suitable bolts S. The clamping portion of the bracket is provided with an inclined slit 93 which leads from one side face thereof to a central opening 94 adapted to receive the member

to be fastened therein, in this case standard 2. Slidably carried in the slot is a hexagonal shaped key 95 which has two of its sides engaging the walls of the slot and a further side in engagement with standard 2. The key 95 is locked in clamping engagement with standard 2 by means of a lock screw 96 which pierces the clamping portion of bracket 90 and intersects with slot 93 and is threadedly engaged with key 95. Thus, as draw screw 96 is tightened the key 95 is drawn up the inclined slot into firm engagement with standard 2 holding same securely against any axial or rotational movement. Also associated with the assembly described is a novel printing cylinder 20 shown in detail in FIG. 8. Essentially this element consists of a hollow cylinder 101 having a central base 102 which is apertured to receive shaft member 45. The outer cylindrical wall 103 of the cylinder is surrounded by a series of concentric loosely fitting concentric annular rings 106, which rings are generally T-shaped in configuration and are type holding members constructed to function as suggested in Patent 2,222,333. In order to retain these rings in place, the top of cylinder 102 is closed by a cover member 107 positioned and held in place by a plurality of spring fingers 108 which engage a reduced portion 109 of central boss 102. Thus, the entire cylinder assembly can be removed as a unit from shaft 45.

For the purpose of retaining the entire assembly on shaft 45, a hand screw 110 is provided, the threaded portion thereof engaging threaded base 111 in shaft 45, and the head thereof being provided with an annular shoulder 112 bearing against cover 107.

Having described my invention in detail it will be apparent that various modifications will occur to those skilled in the art, such changes being within the spirit and scope of the invention which is limited only as defined in the claims following.

I claim:

1. A printing assembly for printing on moving articles comprising a movable arm having a free end and a pivotally mounted end, bracket means for removably mounting said arm at a selected location on a frame adjacent the articles to be imprinted with the free end of said arm positioned so as to be movable toward and away from said article, a printing roll mounted on the free end of said arm for contact with and imprinting said articles, means on said arm for inking said printing roll, means for regulating the transfer of ink to said printing roll and spring biasing means for returning said printing roll to a fixed position after each article has been contacted thereby, said regulating means comprising a non-rotating slide member carried by said arm and movable longitudinally thereof, a floating screw member and an operator threadedly mounted thereon, said floating screw member having one end fixedly engaged with said slide means and having its other end resiliently connected to said arm to provide yieldable and adjustable interconnection between said regulating means and said arm.

2. A printing assembly as defined in claim 1, wherein said inking means includes a single inking roll in direct contact with the printing roll.

3. A printing assembly as defined in claim 1, wherein said inking means includes an intermediate transfer roll disposed between the printing roll and the inking roll, said transfer roll being mounted for limited universal movement relative to said transfer and said printing roll.

4. A printing assembly as defined in claim 3 wherein said intermediate roll includes a roll journal having free ends extending beyond the extremities of the roll, mounting means receiving the free ends of the journal and spring means carried by said mounting means and engaging the free ends of the journal whereby to retain same firmly but resiliently seated against said mounting means.

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5. A printing assembly as defined in claim 1 including a cup-shaped washer and a spring between said operator and said cup-shaped washer.

6. A printing assembly as defined in claim 1, including a standard for mounting said fixed end of said arm, and wherein said bracket means includes a base portion and an upstanding clamping portion and lock screw means to removably mount said standard in said clamping portion.

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10 ROBERT E. PULFREY, *Primary Examiner.*

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