

[54] CODE-MARKING MECHANISM

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[58] Field of Search.....101/35; 74/242.11

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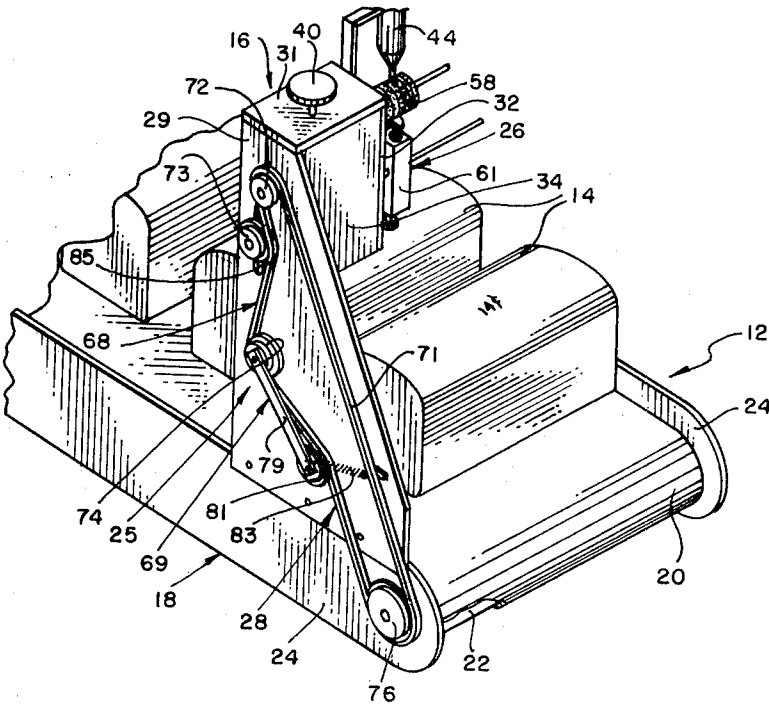
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[57] ABSTRACT

A marking mechanism has an interconnected marker and conveyor for marking commodities regardless the speed of movement thereof. The mechanism has an adjustable drive for adjustment vertically and laterally of the marker. A conveyor used as the drive force for the marking mechanism has an adjustable support bracket with a marking fluid assembly and a stamping assembly connected thereto.

3 Claims, 5 Drawing Figures



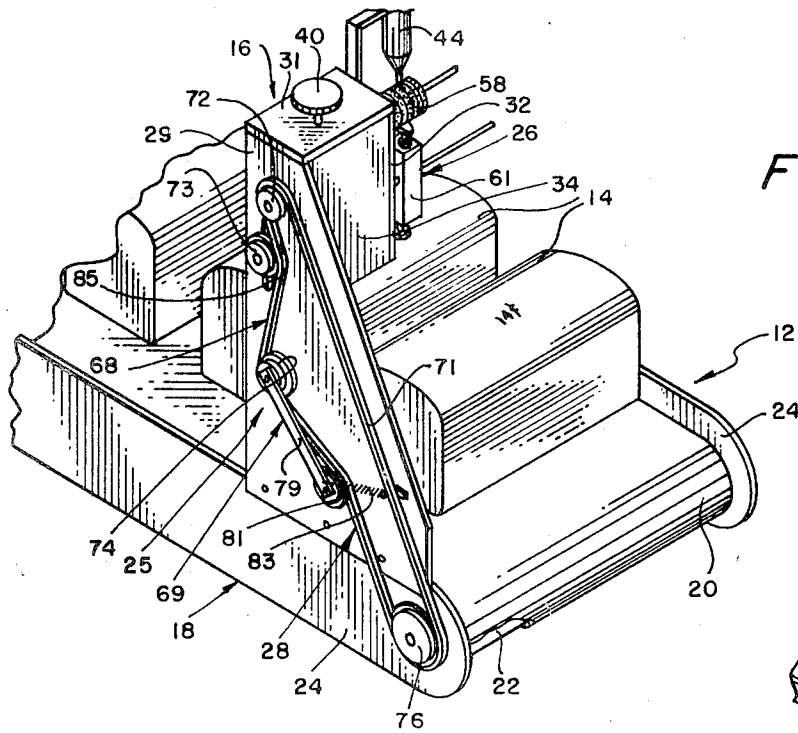


FIG. 1

FIG. 3

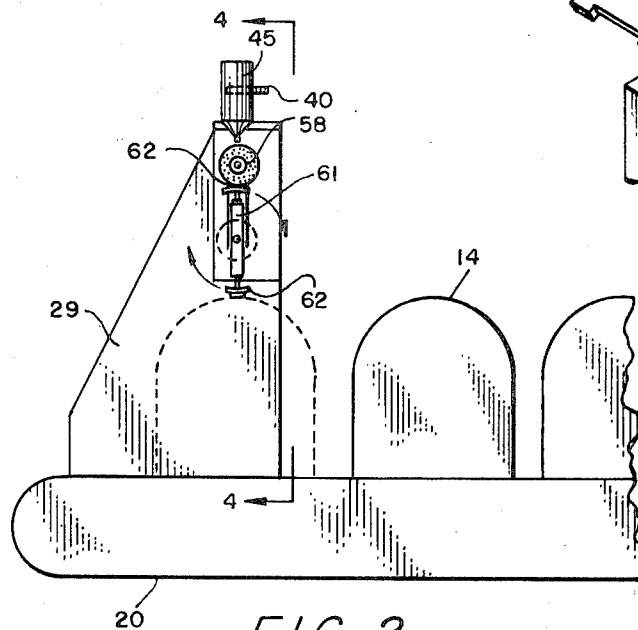
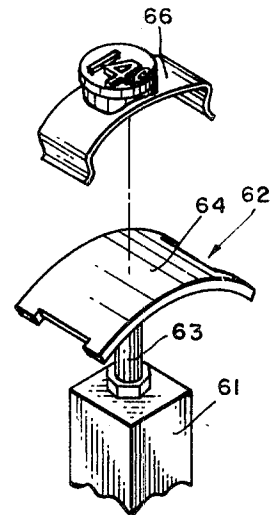
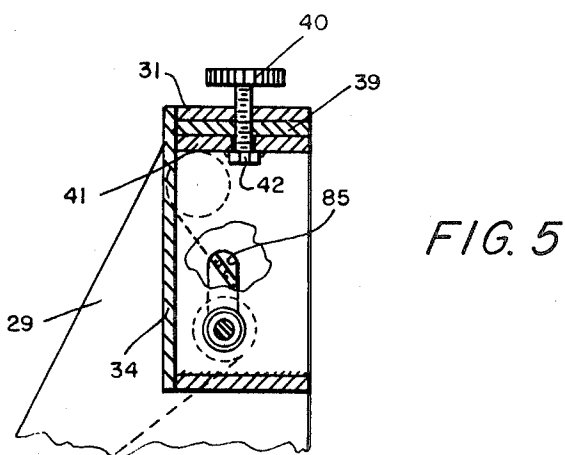
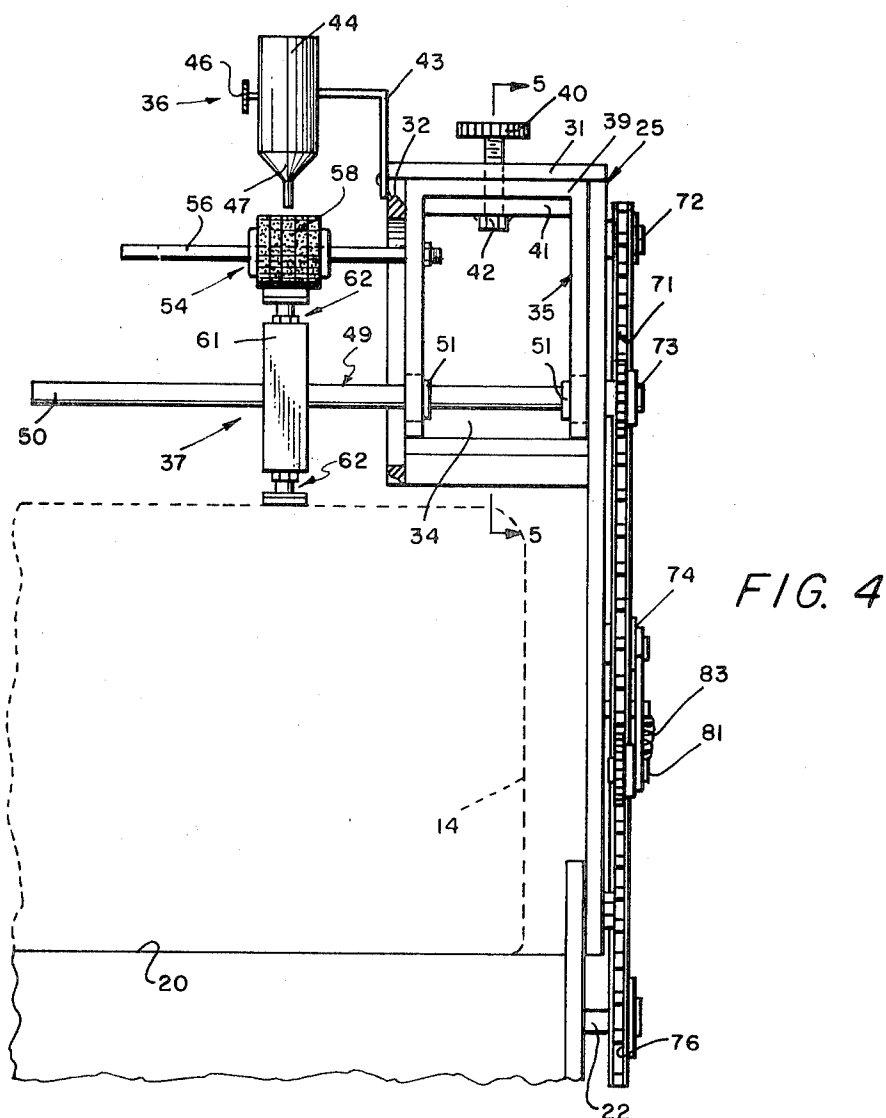


FIG. 2

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CODE-MARKING MECHANISM

Numerous types of marking devices are known to the prior art operable to provide a means for stamping various commodities with a given code or price. However, the prior art devices are complicated in nature and not effectively operable to readily mark various objects not withstanding the sizes and spacing therebetween. Also, the prior art devices require large capital investment having numerous mechanical difficulties during the operation thereof. Also, the prior art devices are normally provided with an elaborate gearing system requiring a separate drive mechanism which certainly is undesirable.

In one preferred embodiment of this invention, a code marking mechanism is provided which is readily connected to an existing conveyor means or so provided in the overall assembly. More particularly, the code-marking mechanism includes a marking means mounted on a conveyor means, preferably an endless belt type. The conveyor means is provided with an endless belt member mounted upon a support bed structure having the belt member movable about spaced roller member and an external power supply operable to oscillate the belt member. At one end of the conveyor means, one of the support roller members is provided with a laterally extended drive sprocket operable to drive the marking means. The marking means includes a main support assembly having an actuator mechanism mounted thereon and connected through a drive assembly to the drive sprocket of the conveyor means. The support assembly includes an upright support plate secured and anchored to one side of the conveyor means and having a laterally extended attachment plate and a downwardly connector plate secured to the attachment plate so as to be in an overlying relationship relative to the endless belt member. The actuator mechanism includes a support bracket operably connected to the support assembly in an adjustable manner and having connected thereto a marking fluid assembly and a code-stamping assembly. The support bracket is movable in a vertical direction through a threaded adjustment knob to readily adjust the height of the stamping assembly. The fluid assembly includes a support bracket connected to the support plate and having a fluid container for dispensing marking fluid therefrom at a controlled rate. The stamping assembly includes a first applicator roller assembly having a roller member rotatably mounted upon a support shaft which, in turn, is anchored to the support bracket. In cooperative engagement with the roller member is a marking assembly adjustably mounted upon a drive shaft and anchored thereto as by a said screw for rotational movement therewith. The marking assembly is provided with a main body anchored to the shaft and having stamping elements mounted on opposite ends thereof. The stamping elements include a support element secured through an attachment shaft to the main block adapted to receive a releasably mounted code element operable to mark the commodities as desired. The drive assembly includes an elongated chain connected through various ones of sprocket members rotatably mounted on the upright support plate and having a tensioning assembly operably engageable with the sprocket chain. The actuator mechanism with the fluid assembly and stamping assembly is readily adjustable transversely of the endless belt member for marking commodities of various widths and also adjustable for any height requirement.

One object of this invention is to provide a code marking mechanism overcoming the aforementioned disadvantages of the prior art structures.

Another object of this invention is to provide a marking mechanism readily attachable to and driven from existing conveyor means being provided with adjustable means so as to mark various commodities on the conveyor means regardless of height, width, and spaced relationship thereon to provide uniform marking.

Still, one further object of this invention is to provide a code marking mechanism connectable to existing conveyor mechanisms to receive the drive power therefrom and operable through a marking means to automatically and continuously mark commodities thereupon.

One further object of this invention is to provide a code marking mechanism which is economical to manufacture, simple to use, substantially maintenance free, and provided with readily adjustable features to accomplish any marking problem.

Various other objects, advantages, and features of the invention will become apparent to those skilled in the art from the following discussion taken in conjunction with the following drawings, in which:

FIG. 1 is a fragmentary perspective view of the code-marking mechanism of this invention with commodities to be marked thereon;

FIG. 2 is a fragmentary elevational view of the code-marking mechanism of this invention having the commodities mounted thereon;

FIG. 3 is an enlarged fragmentary exploded perspective view of a portion of the stamping assembly of this invention;

FIG. 4 is a fragmentary enlarged section view taken along line 4—4 in FIG. 2; and

FIG. 5 is a fragmentary sectional view taken along line 5—5 in FIG. 4.

The following is a discussion and description of preferred specific embodiments of the new marking mechanism of this invention, such being made with reference to the drawings whereupon the same reference numerals are used to indicate the same or similar parts and/or structure. It is to be understood that such discussion and description is not to unduly limit the scope of the invention.

Referring to the drawings in detail and in particular to FIG. 1, a code marking mechanism of this invention, indicated generally at 12, is shown as having a commodity, namely, loaves of bread 14 mounted thereon for longitudinal movement under a marking assembly. More particularly, the code-marking mechanism 12 includes a marking means 16 connected to a conveyor means 18 so as to be elevated therefrom and extended laterally thereover for properly marking various commodities.

As shown in this embodiment, the conveyor means 18 includes an endless belt member 20 having opposite ends connected to roller members 22 which, in turn, are anchored to upright support or guide plates 24 to provide for the oscillatory movement of the belt member 20. It is obvious that one of the drive roller members 22 could be driven by a power source or friction rollers could be attached to the belt member 20 for driving the same. It is noted that the main necessity is movement of the articles to be marked in the proper relationship to the marking means 16.

The marking means 16 includes a support assembly 25 rigidly connected to the conveyor means 18 and preferably connected adjacent to one of the roller members 22; an actuator mechanism 26 secured to the support assembly 25; and a drive assembly 28 secured to the support assembly 25 and operably connected to the actuator mechanism 26 for the proper operation thereof.

The support assembly 25 includes an upright support plate 29 having its lower edge secured as by bolts or the like to an upright guide plate 24; an upper base plate 31 secured to the upright support plate 29; and, additionally, an attachment plate 32 connected to the base plate 31 to provide an upper U-shaped support assembly. A backplate 34 is secured to the plates 29, 31, and 32 to provide rigidity to same. It is seen that the baseplate 31 and the attachment plate 32 provide a structure to which the actuator mechanism 26 is attached as will become obvious.

The actuator mechanism 26 includes an adjustable support bracket 35 operably connected to the attachment plate 32 and the baseplate 31 of the support assembly 25, a marking fluid assembly 36 is connected to the attachment plate, 32, and a stamping assembly 37 connected to the support bracket 35. The support bracket 35 is of substantially U-shaped having a hole in an upper central plate section 39 to receive an adjustment knob 40 therethrough which is connected to a lift plate 41 and to a nut member 42 thereby providing height adjustment of the support bracket 35 on rotation of the knob 40.

The marking fluid assembly 36 includes an L-shaped support arm 43 having one end anchored as by welding or the like to the support assembly 25 and the opposite end connected to a fluid container 44. A control valve 46 is operable to control the dispensing of fluid from the container 44 through a discharge funnel 47. It is obvious that the fluid container 44 may be readily adjustable relative to the L-shaped support arm 43 for variations in height of the overall marking mechanism 12.

The stamping assembly 37 includes a marking assembly 49 provided with an elongated shaft 50 mounted rotatably through bearings 51 in the movable U-shaped support bracket 35 and an applicator roller assembly 54 mounted in the U-shaped support bracket 35 positioned adjacent the fluid container 44. More specifically, the applicator roller assembly 54 includes an elongated shaft member 56 having a rotatable roller member 58 mounted thereon with the roller member 58 longitudinally adjustable on the shaft member 56.

The marking assembly 49 includes a main body 61 adjustably mounted upon the support shaft 50 and anchored in a given lateral position as by the setscrew for rotation with the shaft 50. The main body 61 is provided at each opposite end with a marking structure 62 having an attachment shaft 63 adjustably connected to the support body 61; a support element 64 connected to the upper end of the attachment shaft 63; and a code element 66 releasably attachable to the support element 64. It is obvious that the code element 66 is provided with a desired impression on the exterior surface for marking purposes as will become obvious.

As shown in FIG. 1, the drive assembly 28 includes a sprocket and chain assembly 68 operably connected to a chain tension assembly 69, all of which is connected to the upright support plate 29 of the support assembly 25. The sprocket and chain assembly 68 includes an endless chain member 71 connected to first, second and third sprocket members 72, 73 and 74, respectively. More particularly, the chain member 71 is trained about a drive sprocket 76 connected to one of the roller members 22 on the conveyor means 18; next trained about the first sprocket member 72 rotatably mounted adjacent the upper end of the support plate 29; trained about the second sprocket member 73 which is connected to the outer end of the drive shaft 50 of the stamping assembly 37; and about the third sprocket member 74 to direct the chain member 71 towards the chain tension assembly 69.

The chain tension assembly 69 includes a main elongated strap member 79 having one end pivotally connected to an outer shaft of the third sprocket member 74 and the opposite end has a fourth sprocket member 81 rotatably mounted thereon engageable with the drive chain member 71. This chain tension assembly 69 further includes a tension spring member 83 having one end anchored to the upright support plate 29 and the opposite end connected to the strap member 79 to bias the fourth sprocket member 81 into engagement with the chain member 71 to take any slack out of the same to provide the efficient and effective operation thereof.

In the use and operation of the code-marking mechanism 12 of this invention, it is seen that the marking means 16 may be attached to an existing conveyor means 18 as by a plurality of bolts so as to be adjacent one of the drive rollers 22 to supply the necessary power thereto. However, it is obvious that the code-marking mechanism 12 can be supplied as a completed unit as seen in FIG. 1 if desired. It is seen that the marking means 16 is connected through the drive assembly 28 to the rotating roller member 22 of the conveyor means 18 so as to have a timed relationship therebetween. Also, the sprocket members 72, 73, and 74 may be changed in size to achieve the desired rotational speed of the actuator mechanism 26 relative to items being carried upon the conveyor means 18. It is noted that the actuator mechanism 26 can be readily adjusted vertically through the use of the knob member 40 to provide the desired vertical height of the stamping assembly 37 relative to the items to be marked.

As illustrated, on reaching the proper height for marking the commodity, namely the loaves of bread 14, it is seen that

the movements of the endless belt member 20 of the conveyor means 18 operates through the drive assembly 28 to rotate the marking assembly 49 through the drive shaft 50 and second sprocket member 73 in a conventional manner. The marking assembly 49 thereupon has the code element 66 adjusted outwardly from the main body 61 through the use of the attachment shafts 63 so that the same contacts the applicator roller member 58 at the uppermost portions of rotation and to transfer the marking fluid from the applicator roller member 58 to the loaves of bread 14. It is noted that the required marking fluid can be fed from the fluid container 44 to provide the proper marking of the commodity. Additionally, it is seen that the applicator roller member 58 and the main body 61 can be moved axially on the shafts 56 and 50, respectively, so as to provide proper positioning of the code elements 66. Also, it is obvious that the vertical adjustment of the actuator mechanism 26 relative to the support assembly 25 can vary the amount of pressure desired to be placed upon the item to be marked to achieve the desired result. A slot 85 is provided in the upright support plate 29 and the attachment plate 32 to permit vertical movements of the marking assembly 49.

It is seen that easy, minor adjustments can be readily accomplished in the code marking mechanism 12 of this invention whereupon the same can be used to mark items of various heights, widths, and a spacing on the conveyor means 18. Although the actuator mechanism 26 with the stamping assembly 37 shows the marking assembly 49 as having two heads or code elements thereon, it is obvious that the main body 61 could be provided with a plurality of laterally extended code elements 66 to mark items closer together such as small cans or, in the alternative, the drive assembly 28 can have certain of the sprocket members 72, 73, and 74 changed to increase or decrease the rotational speed of the marking assembly 49.

It is seen that the code-marking mechanism of this invention provides a readily adjustable structure which is economical to manufacture, simple to use, and substantially maintenance free. The marking mechanism can be readily attached to an existing conveyor structure if desired and has proven to be a very time saving and accurate means of marking items with the desired code.

The following invention has been described in conjunction with the preferred specific embodiments thereof, and it will be understood that this description of the invention is defined by the following claims:

I claim:

1. A marking mechanism adapted to sequentially mark a plurality of items comprising:

- a. a conveyor means adapted to convey commodity items therealong for marking purposes and having a drive member,
- b. a marking means connected to said conveyor means through a support assembly and having an actuator mechanism secured to said support assembly operably connected to said drive member through a drive assembly,
- c. said actuator mechanism including a support bracket connected to said support assembly, and a stamping assembly connected to said support bracket,
- d. said stamping assembly including a marking assembly secured to a support shaft operably connected to said drive assembly, a U-shaped support bracket connected through a lift plate and a nut member to said support assembly to provide for the vertical adjustment thereof, and an applicator roller mounted upon a shaft secured to said support bracket having the outer surface of said roller member engageable with said marking elements,
- e. said marking assembly having a main body with marking elements at outer ends thereof for marking the items,
- f. said drive assembly having a plurality of sprocket members connected to said drive member through a chain member, each rotatably mounted on said support assembly, said drive assembly connected to said drive member and said marking means to provide rotation of

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- said marking assembly proportionate to the movement of said conveyor means for proper timing and marking of the items regardless of speed utilized,
- g. said lift plate contacting an under surface of said support bracket to control vertical movement of said marking means on rotation of said nut member, and
- h. said support shaft rotatably mounted in said support assembly having a sprocket member secured to an outer end operably engaged with said chain member thereby providing rotation of said marking assembly proportionate to the movement of said conveyor means.
2. A marking mechanism as described in claim 1, wherein:
- a. said drive assembly including a chain tension assembly

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- having an idler sprocket member spring biased to contact with said chain member to maintain the proper tension thereof.
3. The marking mechanism of claim 1, wherein:
- a. said marking assembly has an elongated main body mounted on and laterally movable on said support shaft with marking structure adjustably mounted on opposite ends, and
- b. said marking structures have a code element releasably connected thereto to contact and mark the commodity items.

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