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MARKING APPARATUS

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The invention relates to marking apparatus.

In many instances it is desirable to give articles in a production line a number or a code designation. For example in the manufacture of certain packaged food products, it is desirable to give each package a code designation to identify packages of one batch from another and in other instances it is desirable to consecutively number articles produced as they proceed along a production line. The object of this invention is to provide a marking apparatus for printing identifying characters on cylindrical articles or objects as they are carried along on a continuously moving conveyor.

A further object of the invention is to provide a marking apparatus of the type above described wherein the article passing along the conveyor may be used to control the movement of the type or printing ribbon.

A further object of the invention is to provide a marking apparatus of the type above described wherein the article passing along the conveyor may be used to control the successive movements of the type or character wheels.

The invention further consists in the several features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings, Fig. 1 is a plan view of a marking apparatus embodying the invention;

Fig. 2 is a side elevation view of the apparatus;

Fig. 3 is a transverse sectional view through the apparatus taken on the broken line 3—3 of Fig. 2;

Fig. 4 is a detail plane view of a modified form of character or type members;

Fig. 5 is a detail sectional view taken on the line 5—5 of Fig. 4.

Referring to Figs. 1 to 3, the numeral 7 designates a conveyor here shown in the form of an endless belt but which may of course take different forms to suit different conditions of use, said conveyor carrying the articles such as the cylindrical container 8 past the marking mechanism.

The marking mechanism comprises a series of character printing wheels 9, here shown as the number wheels of any suitable counter mechanism in which successive operations of the counter shaft 10 acts to advance the number wheels step by step in known manner and in which the printing characters are slightly raised above the surface of the wheels.

A printing or inking ribbon 11 is mounted for disposition in front of the wheels 9; the same passing from a supply roll 12 journaled on a vertical spindle 13 and across the face of said wheels and being wound up on a roll 14 journaled on a vertical spindle 15, the side wall of the container being engaged by the ribbon 11 as the container is carried past the printing mechanism by the conveyor 7.

In order that the container may have the characters of the printing wheels impressed or printed thereon as it advances across them, means are provided for yieldingly holding the container against the printing ribbon and at the same time revolving the container relatively to said printing ribbon. This means comprises an endless belt 16 of leather, rubber or suitable composition material which runs about the horizontally disposed idler pulley 17 and the drive pulley 18 mounted respectively on the shafts 19 and 20, the shaft 20 being connected by spiral gears 21 and 22 to a continuously driven shaft 23 which is driven in any suitable manner by connection with a drive sprocket 24 to any suitable source of power, said belt moving in the same direction as that of the conveyor but at a higher rate of speed.

The belt 7 as shown in the drawings, runs over a relatively flat horizontally disposed frame member 25 which has a vertically disposed belt guide side piece 26 secured to it and guiding the run of the belt that engages the container at the printing station.

In order to present fresh portions of the printing ribbon to the printing wheels and also where desired to change the position of such wheels, the extended end of the shaft 23 carries a cam 27 engaged by a roller 28 on a lever 29 pivoted at 30 and held in operative position relative to the cam by a spring 31, the

outer end of said lever being pivotally connected to an operating link 32 which in turn is operatively connected at one point to printing wheel mechanism and at another point to the ribbon feed mechanism.

For the ribbon feed mechanism, the wind up roll 14 has a ratchet wheel 33 connected to it engaged by a pawl 34, pivoted at 35 on a pawl operating arm 36 and held against said ratchet wheel by a spring 37, said arm 36 being pivoted at 38 to the frame of the machine and moved on its non-feeding stroke by a spring 39 and on its feeding stroke by connection with the link 32 through link 40 and bell crank lever 41 pivoted at 41' and connecting link 40 with a pivot post 42 mounted on the link 32 intermediate its ends.

For the printing wheel feed, the shaft 10 carries a ratchet wheel 43 engaged by a spring pressed pawl 44 on an oscillatory pawl carrying arm 45 pivotally connected at one end to the shaft 10 and at its other end by a pin 46 to the upper end of the link 32.

Thus for every oscillation of the lever 29 and hence the link 32, the shaft 10 will be moved the distance of one tooth of the wheel 43 and the ribbon roll 14 will be turned through the distance of one or more teeth of the ratchet 33 depending upon the stroke of the arm 36, it being noted that spring finger 47 prevents reverse movement of the ratchet wheel 33 and that gears 48 are the usual transfer gears for the number of printing wheels 9.

The oscillation of the lever 29 is under the control of the article being printed so that the ribbon and wheel feeds only operate as each container is presented through the shaft 23 runs continuously. For this purpose a lever 49 is pivotally mounted intermediate its ends at 50 on the frame of the machine and has an article engaging finger 51 at its upper end and a lever engaging stop finger 52 at its lower end. The finger 51 as shown in Fig. 1, projects normally into the path of the article and the stop 51 into the path of the upward movement of the lever 29 and is held in this position by a tension spring 53 connecting the upper end of the lever 49 with the frame of the machine.

Consequently as an article advancing along with the conveyor 7 in the direction of travel shown by the arrow in Fig. 1, passes by the finger 51 it pushes it outwardly thereby swinging the stop 52 out of engagement with the lever 29 and thus permitting the lever 29 to be oscillated by the cam 27 to move the link 32 and through it the ribbon and number feed mechanisms one stroke. Thus the article or container after being printed on sets the printing wheels in position for the printing of the next article of a series.

Where it is desired to designate each article or a certain batch or run of production, as is sometimes the case with processed food

products, instead of using a printing wheel mechanism in which the printing faces are varied each time, a printing wheel arrangement or coding wheels such as shown in Figs. 4 and 5 may be used in which the central supporting shaft 54 is stationary and the number or character wheels 55 are free to be turned on said shaft but each adapted to be locked thereto in a set position by manually operable pins 56 registerable with a radially disposed groove 57 in the shaft and with any one of a series of radially disposed openings 58 in each wheel.

I desire it to be understood that this invention is not to be limited to any particular form or arrangement of parts except in so far as such limitations are included in the claims.

What I claim as my invention is:

1. In a device for printing identifying characters on cylindrical objects, the combination of a conveyor for the objects, a printing mechanism at one side of the conveyor, and power driven means for revolving the objects as the same move on the conveyor past the printing mechanism in printing contact therewith.

2. In a device for printing identifying characters on cylindrical objects, the combination of a moving conveyor for the objects, a printing mechanism at one side of the conveyor, and a belt engaging the opposite side of the objects as they pass the printing mechanism to revolve said objects in printing contact therewith.

3. In a device of the character described, the combination of a conveyor for cylindrical objects, a printing mechanism including character type members and a printing ribbon, means for revolving each object over the face of the ribbon as it passes the type members, and power operated means, controlled by the object, for feeding the printing ribbon.

4. In a device of the character described, the combination of a conveyor for cylindrical objects, a printing mechanism including a register device provided with character type members and a printing ribbon, means for revolving each object over the face of the ribbon as it passes the type member, means controlled by the object for operating the register device, and means also controlled by the object for feeding the printing ribbon.

5. In a device of the character described, the combination of a conveyor on which cylindrical objects are carried, printing mechanism at one side of the conveyor arranged to contact with the side of the object as it is carried past the same by the conveyor, and a continuously moving belt at the other side of the conveyor moving in the same direction as the conveyor but at a higher rate of speed and engageable with the side of the object to turn the same as it passes the printing mechanism and maintain it in printing contact with said printing mechanism.

6. In a device of the character described, the combination of a conveyor on which cylindrical objects are carried, printing mechanism at one side of the conveyor including
5 changeable number wheels, a printing ribbon disposed in front of said number wheels and engageable with the objects, means for revolving said objects while in printing position, means for feeding said ribbon relative
10 to said wheels including an operating lever, a continuously rotating cam for operating said lever, and a stop member for said lever normally preventing its movement and having a finger disposed in the path of an object
15 moving along said conveyor to release said stop member to permit said cam to operate said lever.

7. In a device of the character described, the combination of a conveyor on which cylindrical objects are carried, printing mechanism at one side of the conveyor including
20 character type members and a printing ribbon arranged to contact with the side of the object as it is carried past said ribbon by the
25 conveyor, a continually moving belt at the side of the conveyor moving in the same direction as said conveyor but at a higher rate of speed and engageable with the side of the object to turn the same as it passes the printing
30 mechanism and maintain it in printing contact with said mechanism, and power driven means, under the control of the object on the conveyor, for feeding the printing ribbon.

35 In testimony whereof, I affix my signature.
JULIUS E. STOLL.

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CERTIFICATE OF CORRECTION.

Patent No. 1,864,954.

June 28, 1932.

JULIUS E. STOLL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, line 86, claim 1, before "conveyor" insert the words continuously moving; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22nd day of November, A. D. 1932.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.