June 26, 1951 I. S. GOTTSCHO 2,558,354

HOT DIE MARKING DEVICE

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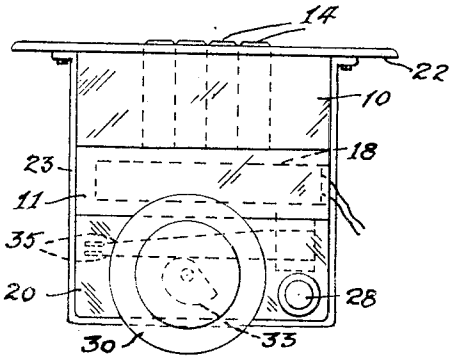

FIG-1-

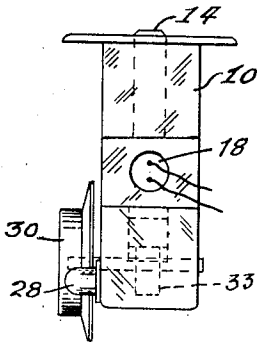

FIG-2-

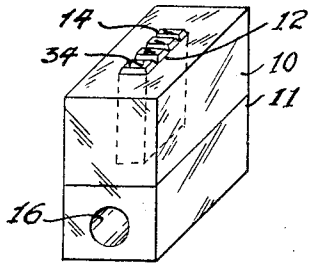

FIG.-3-

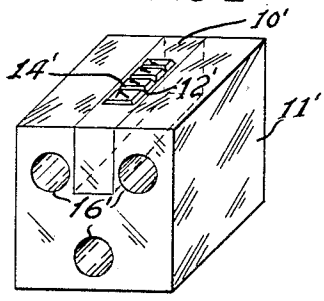

FIG.-4-

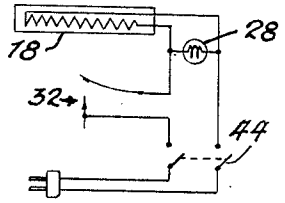

FIG.-5-

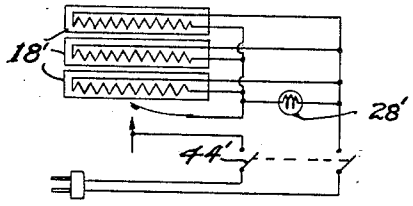

FIG.-6-

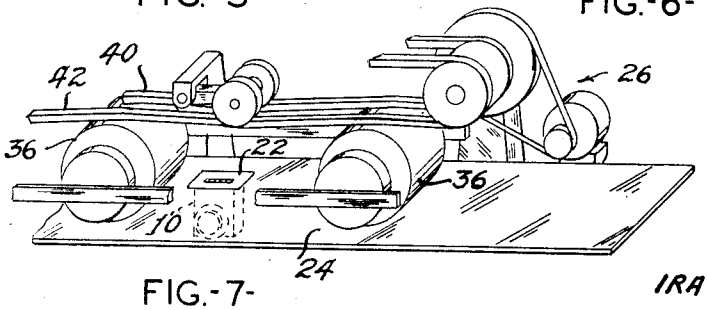

FIG.-7-

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HOT DIE MARKING DEVICE

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2 Claims. (Cl. 101—8)

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This invention relates to improvements in marking devices and method of marking, and is particularly directed to a method of and device for impressing indicia on the labels or wrappers of packaged goods and on lithographed containers and the like.

It is the practice of manufacturers of packaged goods to have a code marking or other indicia impressed in the labels or wrappers of packaged goods, such as wraparound labelled containers, as well as on lithographed containers and the like, in such a manner as not to mar or disfigure the printing on the label or container. It is a desideratum that such code marking be as inconspicuous as possible to the consumer and yet be of such a nature as to readily be detected by the manufacturer.

One of the objects of the present invention resides in the provision of a method of marking which provides a "scorching in" or semi-perforation of the indicia or code marking on the label, wrapper or container in such a manner as to be practicably inconspicuous, permanent, and not subject to obliteration or obscuration.

Another object resides in a method of marking which provides a marking of the character indicated which is uniformly impressed in a predetermined position in labelled articles as they are successively advanced to the marking station.

A further object resides in the provision of a device for automatically scorching indicia in articles, the device being so constructed as to readily adapt the marking step as part of the labelling operation, thereby eliminating the expense of additional marking equipment.

A further object resides in the provision of means of the character mentioned which can be utilized in a labelling machine without interrupting the operation of the machine or the speed of the labelling operation.

A still further object resides in the provision of a device of the character indicated wherein the indicia bearing elements of the device are readily interchangeable, and wherein fragments of the material removed from the labels or articles during the marking operation are readily removable from the device.

Other and further objects of the present invention will be obvious from the following description and the accompanying drawing, wherein

Fig. 1 is a front elevational view of the device of the present invention;

Fig. 2 is a side elevation thereof; without the frame;

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Fig. 3 is a perspective view of one form of the heating blocks and indicia bearing elements of the present invention;

Fig. 4 is a perspective view of a modified form thereof;

Fig. 5 is a wiring diagram for the device of Figs. 1 and 2;

Fig. 6 is a wiring diagram for a device employing the block of Fig. 4; and

Fig. 7 is a schematic view of a labelling machine employing my invention.

Referring to the drawing in detail, a heating block 10, preferably of solid metal, is provided with a rectangular aperture 12, which extends vertically through the block, for the reception of one or a plurality of indicia bearing elements 14. While a single row of these elements only is illustrated, it is to be understood that a plurality of rows may be provided, if desired. These elements are preferably held in the recess frictionally whereby to be readily removable and interchangeable, but if desired the same may be clamped or otherwise removably secured therein.

The block 10, which for convenience will be referred to as the indicia holding block, is removably supported on a second block 11, which will be referred to as the heating block. The heating block 11 has a longitudinal recess extending substantially the full length thereof to accommodate an electric heating cartridge 18 which is inserted therein. The block 10, and the indicia bearing elements 14, are adapted to be heated by the block 11, through induction, when current is supplied to the cartridge 18. The cartridge 18 may be of cylindrical, rectangular, or any other desired cross-section, and the recess 16 may conform to the geometrical cross-section of the cartridge.

The blocks 10 and 11 are mounted on a support 20, preferably of heat insulating material such as ceramic or similar material, which may be of any desired shape. The support and blocks are removably mounted in a frame which is adapted to be supported in a bed 24 of a labelling machine 26, such as shown in Fig. 7. The frame may be of any desired construction, such as a band 23 having flanges welded or otherwise secured to a top plate 22.

A signal light 28 is mounted on the support 20, and a dial 30 for adjusting the setting of a thermostat 32, whereby to control the temperature of the blocks 10 and 11 and the indicia bearing elements 14, is also mounted on the support 20, in any suitable manner, whereby the dial and the signal light are visible and within easy reach

of the operator when the device is in place in the machine 26.

The cartridge 18 and the signal light 28 are connected in parallel in an electrical circuit, as shown in Fig. 5, in which circuit the thermostat 32 is connected in series.

The blocks 10 and 11, the support 20 and the parts supported thereby, all of which are carried by the frame elements 22 and 23, constitute a unitary structure, whereby the same can readily be installed in a machine, or used manually, as desired. When the unit is placed in the machine 26 the upper ends of the indicia bearing elements 14, or at least the sharp edged type 34 thereof, project slightly above the machine bed in line with wraparound labelled articles or lithograph containers 36 as they are conveyed along the machine bed by belts 40 and 42. As the articles are successively rolled over the indicia bearing members, in their travel along the bed of the machine, a sharp imprint of the indicia is scorched, or semi-perforated, in the labels or wrappers, or in the surface of lithographed containers.

It will be understood that the unitary device of the present invention and the articles to be marked, may if desired be reciprocated into contact with each other to effect the marking, instead of being mounted in a labelling machine, as just described.

The blocks 10' and 11', shown in Fig. 4, are similar to the blocks shown in Fig. 3, except that the block 11' is provided with a cut-out portion to accommodate the block 10', and the block 11' has a plurality of recesses 16' for a corresponding number of electrical heating cartridges 18'. These cartridges are so arranged as to provide the most effective uniform heating of the blocks and the indicia bearing elements, in the modified form of Fig. 4, and it will be noted that two of the cartridge recesses are in the block 11' on either side of the block 10', while the other recess is below the block 10'.

The wiring diagram of Fig. 6 is similar to that of Fig. 5 except that it includes a number of cartridges 18 corresponding to the number of recesses in the blocks of Fig. 4, which cartridges are connected in parallel in the electrical circuit, as shown in Fig. 6.

I have found that a perfect "scorching in" or semi-perforation of the indicia is effected when the temperature of the block 10 and the indicia bearing elements 14 is maintained within a small predetermined temperature range within a larger range of 250° F. to 1200° F. The temperature is maintained within the small predetermined range by the thermostat 32 which is manually adjustable by means of the dial 30, and which has a cam 33 on its shaft adapted to engage one of the thermostatic elements 35.

The small temperature range may be of the order of 5° F. to 10° F. which is predetermined depending upon the character, thickness and texture of the material of the label. It is to be understood that I do not wish to be limited to any specific small range, as obviously certain labels, or lithographed surfaces will require the indicia bearing elements to be heated to a higher degree than others, whereby to effect proper marking. Also it will be understood that the elements may be maintained substantially at a predetermined degree of temperature instead of the small range mentioned.

The operation and utilization of the device of the present invention is relatively simple. When

the device is employed in connection with a conventional labelling machine, such as shown in Fig. 7, the desired indicia members are first inserted in the aperture 16 of the blocks 10. The height of these members, less the type 34, is substantially equal to the height of the block 10 so that when the bottoms of the members rest on the upper surface of the block 11, or any other similar surface, the type or indicia 34 projects the proper distance above the surface of the block 10. When the indicia bearing members are in place, the unit is then positioned near the discharge end of the machine, with the type of the indicia bearing members projecting slightly above the upper face of the machine bed, so that as the articles pass from the labelling station, they will roll over in contact with the type of the indicia bearing members.

When the device is set in position, and the machine is ready for operation, the switch 44 in the electrical circuit is closed, whereby current is supplied to the cartridge, or cartridges. The thermostat 38 is adjusted for the desired degree of temperature within the small predetermined range hereinbefore mentioned. With the circuit closed the signal lamp 28 will be lighted whereby to indicate that the unit is in operation, and when the blocks are heated to the desired temperature by means of the cartridge or cartridges 18, the indicia bearing elements will also be heated, and the labelling machine may then be set in operation.

By reason of the fixed position of the unit in the machine bed and the positive drive effected by the belt drive of the labelling machine, the same portion of the label or wrapper of successively advanced articles, or the containers as the case may be, will be contacted by the indicia bearing members, so that the indicia will be in the same location on each article. Moreover, by reason of the uniform pressure of the belts on the articles and the uniform heat of the indicia bearing elements, the marking will be uniform.

After one cycle of operation, should it be desired to change the indicia for the next cycle, it is merely necessary to remove the block 10 and replace the indicia elements. When the elements are removed from the block any fragments of the scorched labels, resulting from the marking operation, that may be present will fall through the open bottom of the aperture 16, so that the device is clean for the next operation.

From the foregoing it will be seen that I have provided a method of marking and a marking device whereby indicia is readily and simply applied to the labels or wrappers of labelled or wrapped packages, which packages may be bottles, jars, cans, or other containers, and wherein the marking is effected by a "scorching in" or semi-perforating method whereby the same is permanent and inconspicuous to the consumer but by being uniformly positioned on the article can readily be detected by the manufacturer.

While I have illustrated and described preferred embodiments of my invention, it is to be understood that I do not wish to be limited to such precise embodiments, as obviously various modifications and changes may be made therein without departing from the spirit and scope of my invention.

What I claim is:

1. In a machine for marking cylindrical articles the combination of a table defining a flat supporting surface and having an opening formed therethrough, a frame removably suspended from

said table below said opening in the latter, a heating block in said frame, a metal indicia holding block removably mounted in said frame on said heating block and formed with a through recess opening at one end against said heating block, indicia bearing elements removably held in said recess of said indicia holding block with said heating block intimately engaging the adjacent ends of said elements to position the latter so that the indicia thereon project from said holding block through said opening in the table to extend a fixed distance above said supporting surface, heating means carried by said heating block for heating said holding block and said elements, and continuous flexible conveyor belts running along said table and spaced upwardly from the supporting surface for engaging successive cylindrical articles and rolling the latter across said supporting surface and over said indicia while yieldably urging the rolled articles downwardly onto said supporting surface so that the indicia bearing elements operate to scorch the indicia into the articles.

2. In a machine for marking cylindrical articles the combination of a table defining a flat supporting surface and having an opening formed therethrough, a U-shaped frame removably suspended from said table below said opening in the latter, a heating block cradled in said frame, a metal indicia holding block removably mounted on top of said heating block and formed with a vertical through recess opening at the bottom against said heating block, indicia bearing elements removably held in said recess of said indicia holding block with said heating block intimately engaging the adjacent ends of said elements to position the latter so that the indicia on the latter project from said holding block through said opening in the table to extend a fixed distance above said supporting surface, heating means carried by said heating block for heating said holding block and said elements, and continuous flexible conveyor belts supported to run along said table and spaced upwardly from said supporting surface for engaging successive cylindrical articles and rolling the latter across said supporting surface and over said indicia while yieldably urging the rolled articles downwardly onto said supporting surface so that the indicia bearing elements operate to scorch the indicia into the articles.

IRA S. GOTTSCHO.

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