

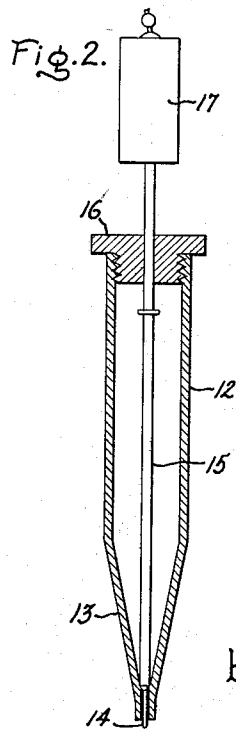
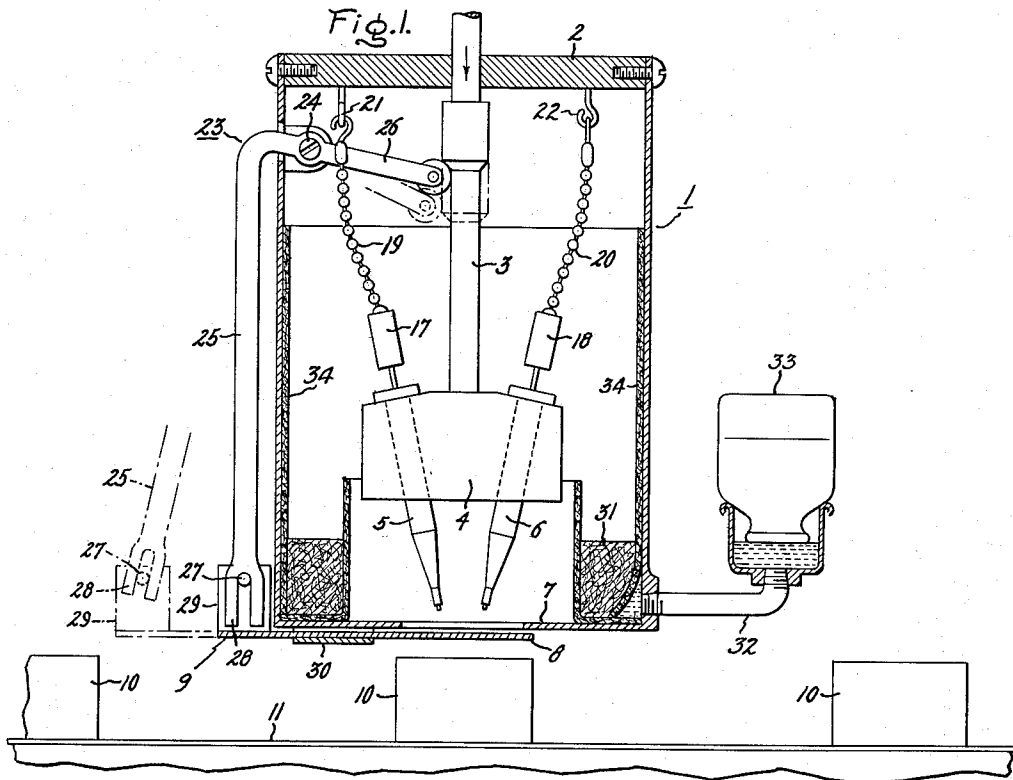
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VAPOR CONDITIONING MEANS FOR STYLOGRAPHIC DEVICES

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## VAPOR CONDITIONING MEANS FOR STYLOGRAPHIC DEVICES

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2 Claims. (Cl. 118—203)

The present invention relates to devices for inscribing upon manufactured articles, any suitable record medium, as for example, paper, suitable code marks or other designations, by the employment of one or more pens or styli. It is the object of my invention to provide means whereby one or more recording pens are maintained in operative condition, and in particular kept clear of gummy or hardened deposits of inscribing fluid, which would plug the pen and prevent or interfere with proper functioning.

Heretofore, considerable difficulty has been experienced with inscribing apparatus due to the failure of styli to dispense marking fluid with desired regularity. Sometimes the marking styli became non-feeding and inoperative and in other cases tended to feed fluid so freely as to blot or spoil markings or even to drip and waste marking fluid.

These operational failures are overcome in accordance with the present invention by the provision of marking devices in which a fluid-dispensing stylus is maintained in an operative, ink-dispensing state. In accordance with one of the features of my invention, a non-feeding condition due to thickening or complete hardening of the marking fluid is overcome by maintaining about the tip of a fluid-dispensing pen an atmosphere of the vapor of a solvent liquid for the marking fluid.

In accordance with another cooperative feature of my invention, a retractable needle-shaped member assists in maintaining in an operative state the marking stylus. The shaped member moves into a duct of the stylus when the latter assumes an idle position and is withdrawn automatically when said stylus assumes an operative position.

The accompanying drawing shows in Fig. 1 in somewhat a conventionalized form a front elevation, partly in section, of an automatic apparatus for marking designations on articles in the course of manufacture, and Fig. 2 is an enlarged sectional view of a marking stylus or pen.

Fig. 1 shows a housing 1 through the top wall 2 of which a rod 3 reciprocates. At the lower end of the rod 3 is a block or head 4 through which the marking devices project. Two pens 5 and 6 are illustrated, but a single pen, or if need be, a larger number of pens may be assembled on the head 4 and operated in accordance with my invention. The bottom wall 7 of the housing 1 is provided with a movable shutter 8 which has attached thereto a stem 9. As will be later explained, the shutter 8 is automatically retracted to open the bottom of the housing 1 when the pens 4 are moved downwardly into position to apply a mark on articles of manufacture 10, which (with others of similar kind) may be caused to travel laterally past the marking pen on a movable carrier 11, the marking devices being actuated by known automatic means (not shown) when a record is to be made.

As shown in detail in Fig. 2, a marking stylus or pen is provided comprising an elongated cylindrical receptacle or barrel 12, which has a tapered tip 13, the extremity of which is open for the egress of marking fluid contained in the barrel 12. This marking fluid may be

chosen to accommodate a desired service. It may consist, for example, of nitrocellulose lacquer and include both a suitable solvent (for example, ethyl acetate) and a chosen coloring agent. Within the tapered end 13 of the pen is a needle 14 which is attached to an elongated stem 15 which is arranged to move through the end cap 16 of the pen and is attached at its upper end to a weight 17. When the needle 14 moves upwardly into the housing of the pen, the needle 14 is withdrawn from the marking tip leaving the latter open to deliver marking fluid.

Referring again to Fig. 1, it should be noted that the weights 17, 18 are attached by yielding attachment links 19, 20 (which may consist of bead chains) to fixed supports 21, 22 on the cover 2 of the housing 1. When the rod 3 is caused to descend by any well-known device (not shown) producing reciprocating motion, the links 19, 20 become taut and then as further descent of the pens occurs the respective stems 15 are held fixedly in position so that additional downward motion of the pens withdraws the needles 14 from the tips of the respective pens. When the pens come into contact with objects, such as indicated at 10 code marks are left thereon.

Rotatably actuated by the rod 3 is a bent lever 23 which is pivoted at 24. As the elongated vertical arm 25 of the lever 23 is tilted, by the downward motion of the short arm 26, toward the position shown in partial dotted outline, the lever arm 25 engages a pin 27 moving in a slot of the prong-shaped end 28 of the lever 25. The pin 27 is attached by a member 29 to the stem 9 which may be slidably moved through a fixed bearing member 30. As the stem 9 is moved to the left, the shutter 8 is opened, thus permitting the pins 5, 6 to emerge from the housing and to eventually touch the article 10 making a mark on its surface. A multiple number of pens may be provided to make an appropriate pattern of colored marks, or dots, which may constitute a code to recognize articles produced in a given time. When the code requires changing the pens may be interchanged, first detaching them from the holding hooks 21, 22. A different color pattern is arranged to indicate a change.

In order more positively to provide against clogging of the pens by thickening of the marking fluid, an atmosphere of solvent vapor is maintained about the pens. A chosen solvent (for example, the solvent forming part of the marking lacquer) is fed to a reservoir 31 through a tube 32 from a container 33 to wet pads 34 upon the interior wall of the housing 1. The drawing shows a sponge or flocculent material in the annular fluid storage space 31 but this material may be omitted. The solvent which saturates the pads 34, continuously evaporates to maintain a solvent vapor atmosphere in the housing 1. The solvent fluid supply level is maintained by the well-known displacement of liquid by air. In the solvent vapor atmosphere the marking fluid is maintained in an operative condition and consequently plugging of the pens is obviated.

Devices embodying my invention may be employed for the automatic imprinting of distinguishing dots, or other insignia, on articles as, for example, electric capacitors during continuous mass manufacture or on inscribing record rolls as may be desired.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A marking device comprising the combination of a tubular pen having a contracted open extremity and being adapted to normally contain a marking material, an elongated stem in said pen having a retractable needle-shaped tip normally closing said extremity when said pen assumes an inoperative position, a reciprocating holder for said pen, means for withdrawing said tip from said extremity when said holder moves said pen into an oper-

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ative position, a housing surrounding said extremity and having an opening covered by a movable shutter, means for maintaining in said housing an atmosphere of vapor of a thinner for said marking material, means for opening said shutter thereby exposing an opening and means for moving said pen into an operative position through said opening.

2. A marking device comprising the combination of at least one stylus, said stylus having an open tip, and adapted to contain a marking fluid to be dispensed through said tip, a housing having a movable shutter enclosing said stylus, a conduit connected with said housing, means for supplying to said housing through said conduit a

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vaporizable liquid which is adapted to maintain in an operative state the marking fluid at the tip of said stylus and pads in said housing arranged to be wet by said vaporizable liquid.

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