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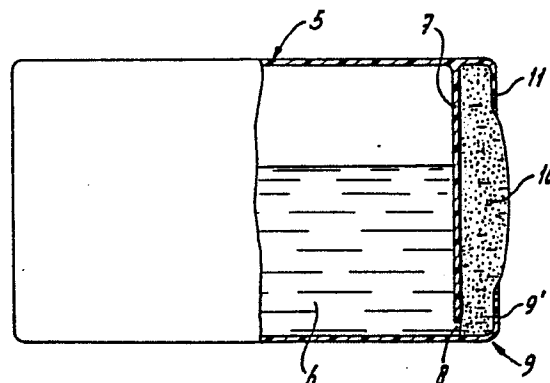
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54 Ink cartridge.

57 A device for wetting an applying member with a liquid, in particular an ink or a similar colorant, comprises a mainly closed container (5, 12) for the liquid (6, 13) having at least one outwardly directed wall (7, 14) formed by a layer of felt (10, 17) or similar liquid absorbing material which is in contact with the liquid (6, 13) in the interior space of the container. The interior space of the container (5, 12) at the side of the felt layer (10, 17) is restricted by a separation wall (7, 14), at the lower side of which at least one opening (8, 15) is provided for connecting said space with a trough-shaped enclosed part (9, 16) open at its upper side and having an upright front wall at a distance from the separation wall (7, 14). An upper edge of said front wall extends to at least the height of the highest point of said opening. The felt layer (10, 17) is substantially contiguous with said separation wall (7, 14) and the lower edge area of

the felt layer (10, 17) projects into the trough-shaped part and means are provided for holding the felt layer at the remaining edge areas. The interior space of the container contains the liquid in free flowing form only.

fig-2



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Ink cartridge

The invention relates to a device for wetting an applying member with a liquid, in particular an ink or a similar colorant, comprising a mainly closed container for the liquid having at least one outwardly directed wall formed by a layer of felt or similar liquid absorbing material which is in contact with the liquid in the interior space of the container.

Such a device, also called ink cartridge, is commonly known and is especially designed for application in a coding apparatus with which keeping quality data, manufacturing codes or the like are stamped on products or packings by means of a stamping roller.

As shown in fig. 1 of the drawing with such a coding apparatus products 2 moving in the direction of the arrow are stamped by a rotating stamping roller 1, wherein the stamping roller is provided with ink by an inking roller 3 rotating along the felt layer of the ink cartridge 4 and transferring the ink to the stamping roller.

In the known ink cartridge the interior space of the container is filled for the main part with a plastic foam engaging the felt layer and saturated with ink, while the remaining part of this space is occupied by a folded piece of corrugated plastic tape lying behind the plastic foam so that a reservoir is formed. The cartridge can be replenished with a solvent only a restricted number of times, to which end the plastic foam has to be pushed aside by means of a tool, so that the solvent can be poured in the cartridge where it arrives in the reservoir formed by the folded piece of corrugated plastic tape. Thereafter the cartridge should remain standing some hours in order to provide the solvent the opportunity to be soaked into the plastic foam and to dissolve the ink stayed behind, whereafter the cartridge is ready for use again.

The known ink cartridge shows the disadvantage that replenishing with a solvent is an unpleasant and dirty operation. Moreover, it could first be noted that the cartridge becomes empty or is already empty at a too late time, because this can only be seen through the prints becoming lighter. Further the prints are irregular, in the beginning with a well filled cartridge, the prints are much fatter than later during emptying the cartridge. Finally, after a relatively long period of non use of the coding apparatus, for example during night, the first prints are unreadable.

It is an object of the invention to provide a device of the above-mentioned type wherein these disadvantages are overcome.

To this end, the device according to the invention is characterized in that the interior space of the container at the side of the felt layer is restricted

by a separation wall, at the lower side of which at least one opening is provided for connecting said space with a trough shaped enclosed part open at its upper side and having an upright front wall at a distance from the separation wall, wherein an upper edge of said front wall extends to at least the height of the highest point of said opening and in that said felt layer is substantially contiguous with said separation wall, wherein the lower edge area of the felt layer projects into the trough-shaped part and means are provided for holding the felt layer at the remaining edge areas, wherein the interior space of the container contains the liquid in free flowing form only.

Because the device according to the invention contains the ink in a free flowing form, it is not required to replenish the container with a solvent and the container can be used as long as until the whole ink supply is used. The ink level within the container can be made visible in a simple manner, for example by making the container of a transparent material.

With a device according to the invention, ink flows from the container through said opening into the trough-shaped part until a certain underpressure is developed above the liquid level in the container, wherein the liquid level in the trough-shaped part lies above the highest point of said opening and ink from the trough-shaped part is sucked by the felt layer. If during operation of the coding apparatus, ink is dispensed to the inking roller through the felt layer, the ink level within the trough-shaped part falls below the highest point of the opening so that air will flow through this opening into the container and said underpressure is decreased with the consequence that an amount of ink will flow into the trough-shaped part again. Therefore the felt layer will be kept saturated with ink constantly so that the prints will continuously be of the same quality whether the container is fully filled or almost empty.

Said opening at the lower side of the separation wall can be formed by at least one opening provided in said wall or by a slot shaped opening because the separation wall extends until a distance from the lower side of the container.

In order to prevent that the ink within the trough-shaped part will flow over its front wall when the container is kept in such an oblique position that the trough-shaped part forms the lowest point, preferably the front wall of the trough-shaped part is formed in such a manner that it extends obliquely inwardly from the lower to the upper side, wherein the opening is formed by at least one tube part extending from the separation wall into the

trough-shaped part.

Preferably said means for holding the felt layer are formed by circumferential edges engaging around the edge areas of the felt layer.

In a favourable manner said circumferential edges are formed on a cover detachably connected with the container, wherein preferably the upright front wall of the trough-shaped part is also formed on the cover. In this manner the container can be filled with ink in a simple manner by removing the cover from the container and subsequently pouring ink through said opening into the container.

The invention will be further explained by reference to the drawings in which:

fig. 2 shows a first embodiment and

fig. 3 shows a second embodiment of the device according to the invention in axial cross-section.

Referring to fig. 2, the device comprises a closed container 5 filled with ink 6. The container 5 has at one side a separation wall 7 extending until a distance from the bottom of the container so that a slot-shaped opening 8 is formed. This opening 8 debouches into a trough-shaped part 9 with an upright front wall 8'.

A felt layer 10 is received with its lower edge area in the trough-shaped part 9 whereas this layer at the remaining edge areas thereof is held by means of the circumferential edge 11 which is bent inwardly.

The embodiment according to fig. 3 also comprises a closed container 12 filled with ink 13. The separation wall 14 is stepped at the lower part and fully extends to the bottom of the container 12. In the lower end of the separation wall 14 a tube part 15 is provided, by means of which the interior space of the container is connected with a trough-shaped part 16 having a front wall 16' extending obliquely inwardly.

A felt layer 17 is received with its lower edge area in the trough-shaped 16 whereas the remaining edge areas of the felt layer 17 are held by means of the circumferential edge 18 which is bent inwardly.

The trough-shaped part 16 and the circumferential edges 18 in this case are formed on a cover 12' which is detachably connected with the container 12 by a snap connection 12". By removing the cover 12' from the container 12, the container 12 can be filled with ink through the tube part 15.

A netting layer not shown is attached to the outside of the felt layer 10, 17 for protecting the felt layer against unraveling due to the inking roller rolling against the felt layer.

Claims

1. Device for wetting an applying member with a liquid, in particular an ink or a similar colorant, comprising a mainly closed container for the liquid having at least one outwardly directed wall formed by a layer of felt or similar liquid absorbing material which is in contact with the liquid in the interior space of the container, **characterized** in that the interior space of the container at the side of the felt layer is restricted by a separation wall, at the lower side of which at least one opening is provided for connecting said space with a trough-shaped enclosed part open at its upper side and having an upright front wall at a distance from the separation wall, wherein an upper edge of said front wall extends to at least the height of the highest point of said opening and in that said felt layer is substantially contiguous with said separation wall, wherein the lower edge area of the felt layer projects into the trough-shaped part and means are provided for holding the felt layer at the remaining edge areas, wherein the interior space of the container contains the liquid in free flowing form only.

2. Device according to claim 1, **characterized** in that the separation wall extends from the upper side of the container up to a distance from the lower side of the container so that said opening is slot-shaped.

3. Device according to claim 1 or 2, **characterized** in that the front wall of the trough-shaped part extends obliquely inwardly from the lower to the upper side.

4. Device according to claim 3, **characterized** in that the opening is formed by at least one tube part extending from the separation wall into the trough-shaped part.

5. Device according to claims 1-4, **characterized** in that said means for holding the felt layer are formed by circumferential edges engaging around the edge areas of the felt layer.

6. Device according to claim 5, **characterized** in that the circumferential edges are formed on a cover detachably connected to the container.

7. Device according to claims 1-6, **characterized** in that the upright front wall of the trough-shaped part is formed on the cover.

fig-1

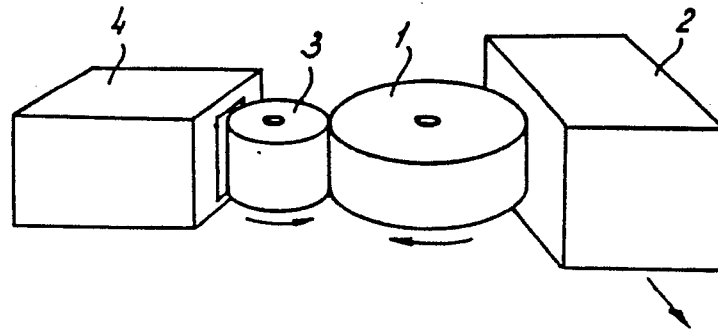


fig-2

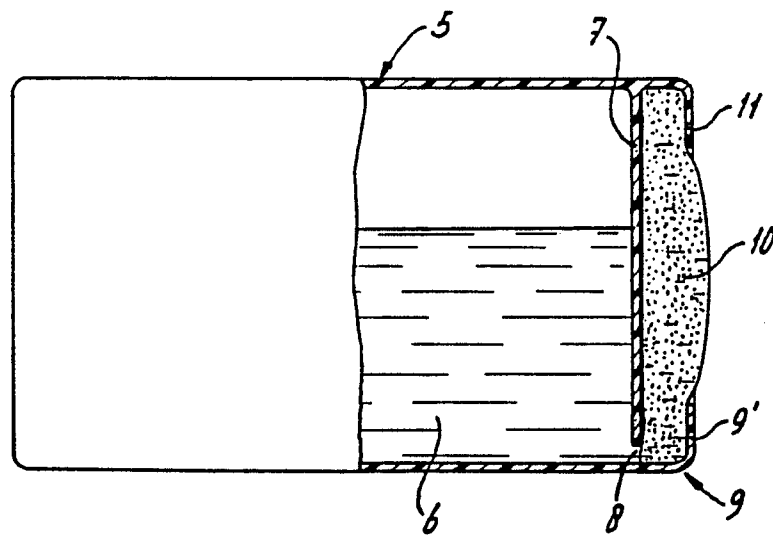
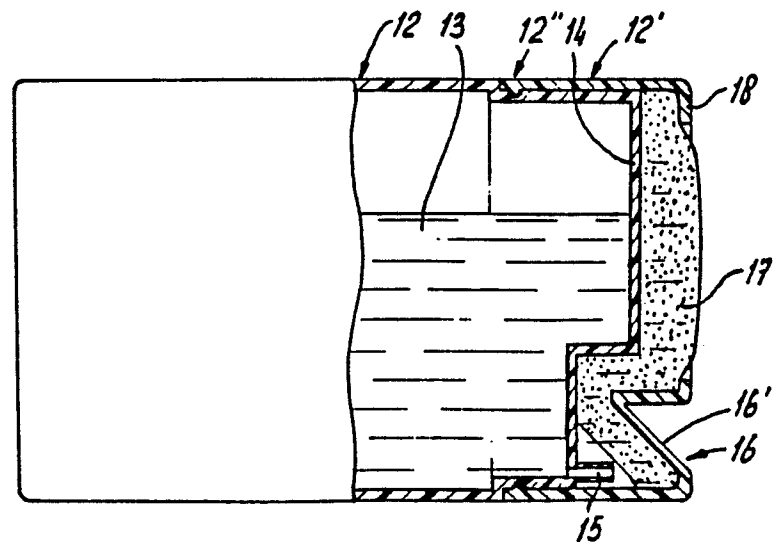


fig-3





EP 87 20 2616

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	WO-A-8 400 516 (NICHOL INTERNATIONAL PTY LTD) * Figure 2; page 3, line 23 - page 5, line 6 *	1	B 41 K 3/56 B 41 F 31/24 B 05 C 1/02
Y	---	2	
A	---	7	
Y	US-A-1 456 447 (C.E. JENNER) * Figure 5, page 8, lines 68-73 *	2	
A	US-A-3 168 865 (R. KELLEY) * Figure 6; column 2, line 65 - column 3, line 6 *	1,5,6	
A	US-A-4 145 967 (A.A. MAROZZI) * Figure 4; claim 1 *	1	
A	FR-A-1 002 543 (J.G. D'ABOVILLE) * Figure 9; page 2, column 2, paragraphs 7-9 *	1	
A	US-A-3 797 390 (MAROZZI et al.) * Figure 5; column 3, lines 5-15 *	1	TECHNICAL FIELDS SEARCHED (Int. Cl.4) B 41 K B 41 F B 05 C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 10-03-1988	Examiner WEBER P.L.P.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			