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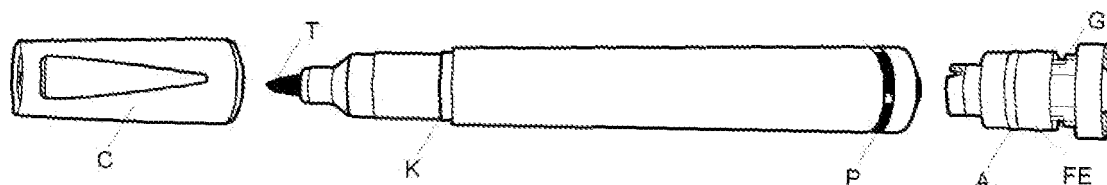
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(54) **An improved marker pen**

(57) This invention relates to an improved Marker Pen with a convenient and easy ink refilling arrangement, comprising a Fibre tip and ink reservoir cartridge, which are provided in the outer cover (body/barrel) and works simply by press-fitting, with complete and satisfactory results. This invention also provides a Cap, which is internationally required to be suitable for use by children, who

in normal use can inadvertently suck back the Cap in mouth during working, which sometimes slips in the throat causing choking and difficulty in breathing, and in some cases may cause death of a child. This Cap is manufactured by providing proper ventilation holes so that adequate breathing should continue if the Cap is sucked into one's throat.

Fig. 7



Description

Field of the Technology

[0001] The present invention relates to an improved Marker Pen.

Background of the Invention

[0002] The invention relates to the Marker Pens frequently used for the purpose of writing and marking particularly when the impression required is of a very bold nature, not a thin impression, which is commonly obtained with fine nib pens. Such Marker Pens having different sizes and have different arrangements of filling ink into their body. The inventors working behind the present invention noted the drawbacks and inconveniences of the prior arrangement and worked on its development for quite a long time. The process of thinking in this regard gave a highly improved ink filling arrangement for a Marker Pen.

[0003] Marker Pen is a widely used device when a thicker writing impression is required. Such Marker Pens due to their extremely high ink-consumption have a wider body and a larger ink reservoir as compared to an ordinary pen with a fine nib, which doesn't need large ink supply. The very high consumption of ink in Marker Pens necessitates the requirement of ink refilling arrangements. Furthermore a fine nib pen has a standard writing point width of around 0.07mm. The Marker Pen usually has a highly porous nib whose width starts from 2mm and go up to 11 mm or even more in certain applications.

[0004] There are basically two ways for refilling ink into the marker body:

1. From the writing end; or
2. From the other end which is remote from writing end.

[0005] It is known to all the users of a Marker Pen that both of the above said points have been adopted by the manufacturers of Marker Pen. The most important factor to be noted in this regard is that the ink refilling arrangements available at present have a screw thread system molded on the body of the marker and the covering body / barrel which is either at the writing end or remote therefrom as mentioned above.

[0006] Experience has shown that the screw-thread system built into the Marker Pens for the purpose of refilling ink is not perfectly reliable and it is also inconvenient in use. In case of a Marker Pen having filling system of the prior arts the most frequent problem is the leakage of air and /or ink due to the very reason that the screw-threads become loose and weaker with the passage of time hence the Marker Pen cannot be closed perfectly. At the same time it is difficult to open and close such systems without straining fingers or clothes. Also the users could not ensure that the screws are threaded back,

perfectly, into their place after refilling. That inherent looseness cause the solvents present in the inks to escape hence leaving the Marker Pen dry and useless. These factors gave a point to the inventors of the present filing arrangement, which is free from all such defects, inconveniences and disadvantages, as described above. The present arrangement is therefore a good news to the users of Marker Pens.

Summary of the Invention:

[0007] This arrangement does not have any conventional thread-and-screw-system type opening and closing but it is based on a snap-on and press-fit system.

There is slot provided in between the body at the end, remote from the writing end, which can be opened just by a gentle push up by a common coin placed in the groove, which is specifically made therein and can be closed after refilling the ink by a simple snap-on and press. This invention also provides a Cap, which is internationally required to be set out for the use of children up to 14 years of age, who normally are in habit of holding the Cap in mouth during working, which sometimes inadvertently slips in their throat causing choking and/or difficulty in breathing, and can cause death of a child. This Cap is designed in such a way that it provides ventilation holes so that the breathing should continue even if the Cap slips in the throat.

[0008] The Marker Pen of the present invention is a highly improved one and it is free from the drawbacks as described above. The Marker Pen has an ink refilling arrangement at the end that is remote from the writing end. This arrangement is based on snap-on and press-fit technique. At the end of the Marker barrel towards the remote-end, which is the opposite end from the writing end, there is an operable section of the body which can be press fitted into the Main Marker body. The two constructional characteristic features of the arrangement of the present invention are that it does not have any screw or threads but it is press fitted with a gentle human pressure, secondly, it can be opened up by using an ordinary coin or any rounded object by placing the same in a small groove specifically made therefore.

Brief Description of the Drawings

[0009] A Marker Pen of the present invention is now described in a more detail with a reference to the accompanying drawings in which:

Figure 1 shows the outer cover of the (barrel / body) Marker Pen;

Figure 2 shows the outer cover (barrel / body) of the Marker Pen with the easy opening and closing system for ink filling at the rear end of the Marker Pen;

Figure 3 shows the Fibre tip fitted on the writing end of the Marker Pen;

Figure 4 shows the Fibre tip covered with the spe-

cially designed Cap of this invention;

Figure 5 shows the top side of the Cap, which clearly shows the ventilation holes in the Cap, which helps in breathing if the Cap slips accidentally in User's mouth.

Figure 6 shows the Marker Pen in finished form;

Figure 7 shows the Cap, the lid and the filling end system separated and

Figure 8 shows the step to open the filling end.

Detailed Description of the Invention with reference to the accompanying drawings:

[0010] Preferred embodiments of the present invention are now made to the following description taken in conjunction with the accompanying drawings so as to provide a more explicit explanation of the object and technical solution of the present invention.

[0011] As is clear from **Figure 1** there is provided a place for housing the Fibre tip at the writing end, which is also attached to the ink reservoir cartridge, which provides ink to the Fibre Tip. The ink reservoir cartridge then rests in the rear cover of the Marker Pen upon push fitting and leaves no room for leakage of ink.

[0012] **Figure 2** shows the cross sectional portion of opening and closing of filling end. A coin or any rounded object has to be gently placed into the groove and rotated along an axis perpendicular to the plane of the coin itself. This action will gently open the cover and allow the user to refill the ink. Now to close the assembly it is just to be re-placed simply at the end and pressed gently.

[0013] **Figure 3** shows the cross sectional view of the main cover of the Marker Pen with Fibre tip and **Figure 4** explains the position of Cap of the Marker Pen and **Figure 5** shows the top side of the Cap, which clearly shows the ventilation holes provided in the Cap.

[0014] **Figure 6** shows a Marker Pen of the present invention denoted by M, having a Cap C, main body B and filling end G. The Cap of this invention is specifically designed to comply with the applicable international standards for use of the product by school going children and fits securely when the marker is not in use.

[0015] **Figure 7** clearly shows all the three main components of the Marker Pen as already described above. The Cap C when removed from the writing end opens the writing tip T, the bulging area K at front part nearer to the writing end enables the Cap C to get press fitted and avoid any damage which may be due to accidental opening of the Cap thereby damaging the clothes or surroundings of the user. The assembly FE which can be press fitted into the main body carries a bulging portion A which when press fitted into the body B gets accommodated into the groove P. There is a specifically made groove G compatible with the thickness of any ordinary metallic coin commonly used. The figure therefore shows quite clearly the invention in full wherein the inventive step resides in the filling arrangement FE.

[0016] **Figure 8** shows the opening and closing of fill-

ing end FE. If there is a coin Q, it has to be gently placed in the groove G and rotated along an axis perpendicular to the plane of the coin itself. This action will take the user to fill the ink. Now to close the assembly FE, it is just to be placed at the end and pressed gently.

[0017] This invention thus relates to an improved Marker Pen with a convenient and easy ink refilling arrangement, comprising a Fibre tip and ink reservoir cartridge, which are provided in the outer cover (body/barrel) and works simply by press-fitting, with complete and satisfactory results. This invention also provides a Cap, which is internationally required to be suitable for use by children, who in normal use can inadvertently suck back the Cap in mouth during working, which sometimes slips in the throat causing choking and difficulty in breathing, and in some cases may cause death of a child. This Cap is manufactured by providing proper ventilation holes so that adequate breathing should continue if the Cap is sucked into one's throat. This arrangement is the outcome of a long research and has been practically checked and found satisfactory from every point of view.

Claims

1. A Marker Pen with an improved ink refilling arrangement comprising a main body cover (the barrel) and a Cap specially designed, the said main body cover having a writing end and an end remote therefrom, **characterized in that** at the end remote from writing end there is an operable section, which operates with a gentle force for refilling the ink into the main body.
2. A Marker Pen as claimed in claim 1 wherein the said operable section has a specifically made groove having a width to accommodate a common coin.
3. A Marker Pen as claimed in claims 1 and 2 wherein to open the said operable section of the main body a common coin is placed inside the said groove and twisted gently to open the section as it gets lifted up leaving the filling end open.
4. A Marker Pen as claimed in claim 1 to 3 wherein to reclose the said operable section a simple snap-on press technique is required.
5. A Marker Pen as claimed in the claim 1 to 4, wherein the Cap is specially designed for complying with international standards requirement, applicable for use of writing and marking instruments by children up to 14 years of age.
6. A Marker Pen as claimed in claim 5, wherein the Cap is provided with ventilation holes to allow unrestricted breathing in case the Cap is inadvertently slips into the throat of a child, while using this Marker Pen.

Fig. 1

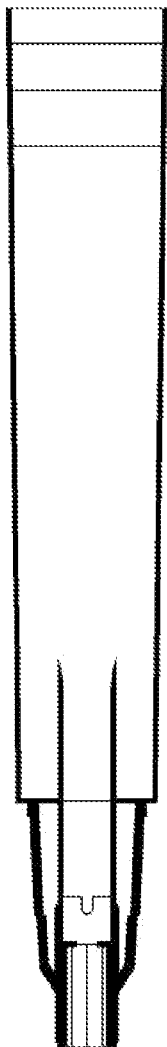


Fig. 2

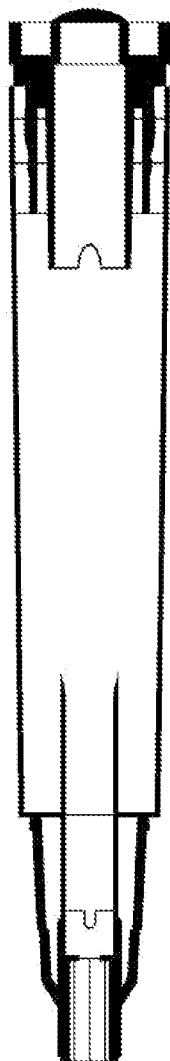


Fig. 3

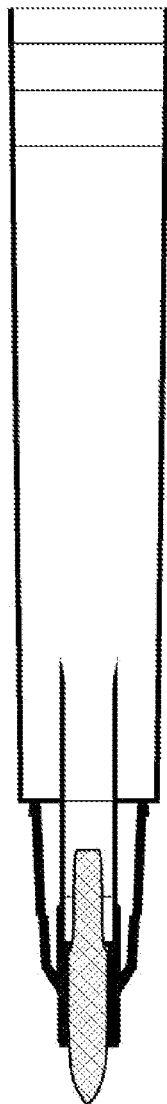


Fig. 4

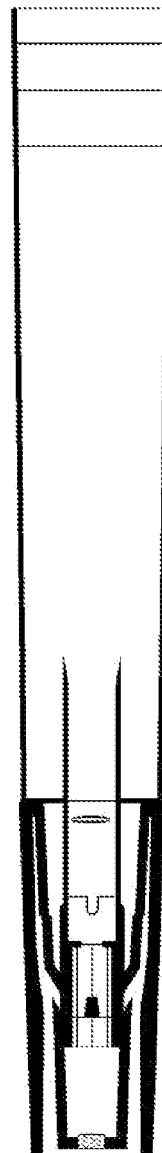


Fig. 5

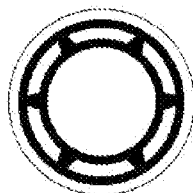


Fig. 6

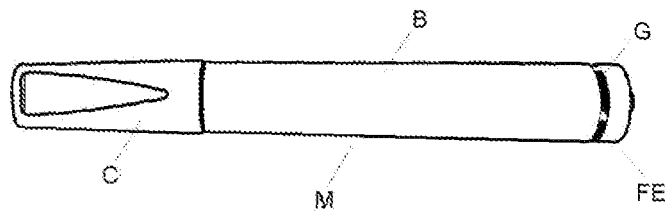


Fig. 7

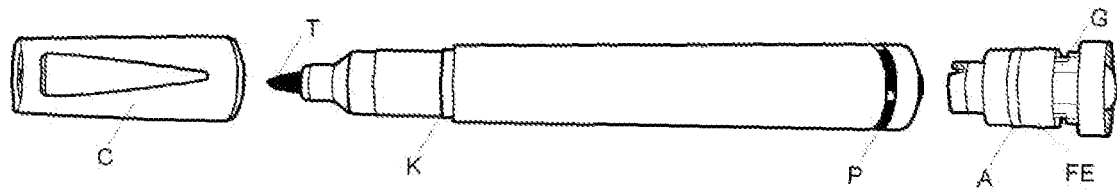


Fig. 8

