

Oct. 18, 1966

L. T. WARD

3,278,976

MEANS FOR SECURING NIBS IN MARKING PENS

Filed April 23, 1964

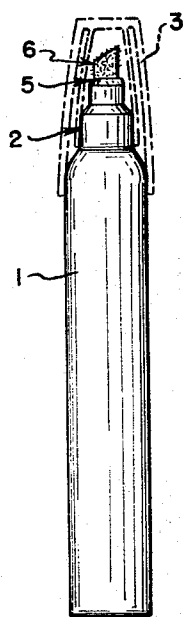


FIG. 1

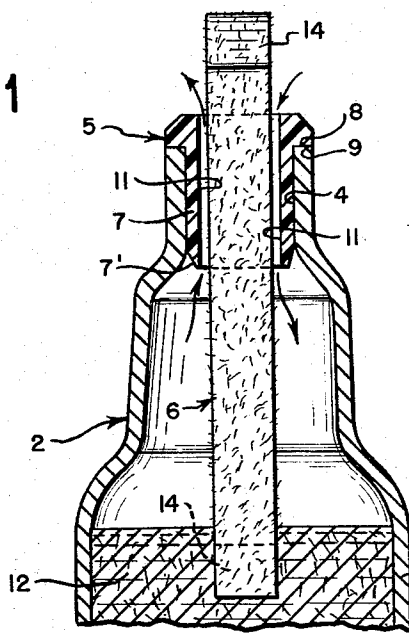


FIG. 4

FIG. 5

FIG. 2

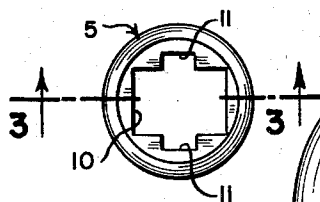


FIG. 6

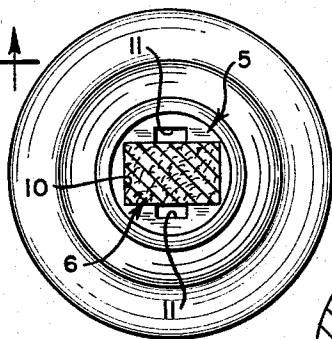
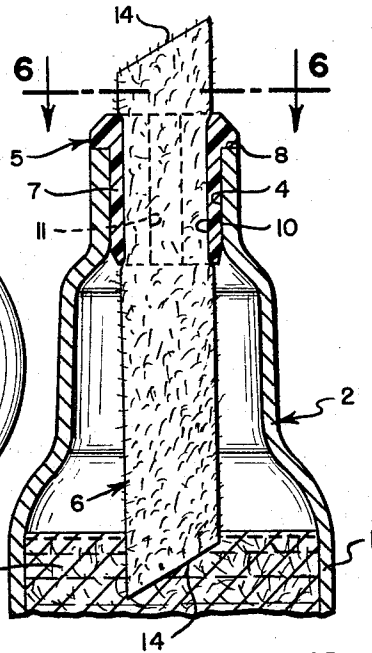
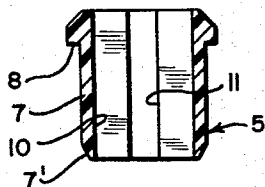


FIG. 3



INVENTOR

Lawrence T. Ward
BY *Pennie, Edwards*
Morton, Taylor & Riley
ATTORNEYS

1

3,278,976
MEANS FOR SECURING NIBS IN MARKING PENS
Lawrence T. Ward, Hester St., Portland, Pa.
Filed Apr. 23, 1964, Ser. No. 362,040
2 Claims. (Cl. 15-563)

This invention relates to structure for securing nibs in ink marking pens and more particularly to a structure whereby the nib may be assembled in the marking pen for later removal or replacement.

Conventional marking pens usually comprise a one-piece drawn metal shell so formed that one end of the shell is closed while the other end has an open neck portion of reduced diameter. The ink used in such marking pens is highly volatile so that it is desirable that the container be made from a single piece of metal in order to minimize leakage and drying of the ink within the pen. These conventional pens have writing nibs made of a felt material which is secured in the neck portion by staking the neck of the container about the felt nib. In addition, the container contains an absorbent material which is inserted into the container prior to the neck portion being formed in order to serve as a wick to feed ink to the felt nib. The marking pen assembly also includes a cap which is adapted to fit over and seal with the outer periphery of the neck portion to keep the ink within the pen from drying out.

Often the nib is damaged when the neck portion is staked about it in that portions of the nib may be unevenly compressed so that the ink flow through the nib will be uneven which in turn results in faulty marking. Because the nibs are staked into the container faulty nibs may not be removed and the whole marking pen must be discarded if the nib is damaged during assembly. Further, staking nibs into the neck prevents the container from ever being refilled or nibs of different sizes being applied to the container.

It is an object of my invention to provide a nib holder into which the nib may be inserted prior to being applied to the container and which will serve to provide a firm support for the nib. By the use of such a holder, different size nibs may be used so that the marking pen may mark in broad or fine lines. The ferrule is so arranged with the nib that a greater part of the outer periphery of the nib is engaged by the ferrule to position the nib in the ferrule such that the ferrule supports the nib by a slight uniform pressure on its periphery. This assures that portions of the nib will not be unduly deformed which deformation could cause uneven compression of the felt material comprising the nib and so effect writing characteristics. In addition, the nib holder allows the felt nib to be inserted into the nib in either direction which is a desirable feature when the nib is to be assembled into the nib holder by automatic assembly means.

Broadly, the invention comprises utilizing in a marking pen having a cylindrical integral container having a closed end and an opposite reduced neck open end portion, a nib holder which is adapted to fit within the opening of the neck portion and which has a shoulder which extends over the end of the neck portion so that the nib holder is axially positioned with respect to the container. The nib holder itself is in the form of a ferrule and has an opening which engages a felt nib where the opening is preferably substantially the same general configuration and size as a cross section of the nib. In addition, vent openings are provided in the nib holder adjacent the opening through which the nib extends in order that ink will be able to flow through the nib from the interior of the container.

2

Referring to the drawing in which a particular embodiment of my invention is shown,

FIG. 1 is a side view of the marking pen constructed according to the invention;

5 FIG. 2 is an enlarged plan view of a nib holder shown in the marking pen of the FIG. 1 construction;

FIG. 3 is a cross-sectional view of FIG. 2 taken along lines 3-3;

10 FIG. 4 is an enlarged sectional view of a portion of the container shown in FIG. 1 illustrating the assembly of the nib with the nib holder and container;

FIG. 5 is a side section of FIG. 4; and

FIG. 6 is a plan view of FIG. 5 taken along lines 6-6.

15 Referring to the drawings in greater detail and in particular to FIGS. 1 and 3 there is illustrated a marking pen comprising a drawn metallic container 1 having a reduced neck portion 2 on which a cap 3 may be fitted to seal the pen. The reduced neck portion has therein an opening 4 into which is fitted a nib holder or ferrule 5 which in turn supports a felt writing nib 6.

20 The nib holder 5 has a depending cylindrical skirt portion 7 which engages with the sides of the interior of the neck portion defining the opening 4. The end 7' of the skirt portion is tapered in order to facilitate assembly of the nib holder in the container. In addition the nib holder has a shoulder portion 8 which engages with the axial end 9 of the neck portion so that the nib holder is positioned axially with respect to the container 1.

25 The nib holder has a rectangular opening 10 as shown in FIG. 2 which is substantially the same general size and configuration as is the cross-section of the nib 6 which is fitted into the opening. In addition cutouts 11 are provided in the nib holder which provide breathing vents as shown in FIG. 4 whereby air may flow into the container as ink is dispensed therefrom.

30 The container in addition is provided with an absorbent wick member 12 which is placed into the container prior to the neck portion being formed and prior to the container being filled with ink. The wick 12 contacts the felt nib 6 to insure supply of ink to the felt nib.

35 The nib 6 is mitered as at 14 at both ends so that either of the surfaces 14 may be used as a writing surface. This is an advantage when assembling the felt nib as the nib may be inserted in the nib holder in either direction which facilitates automatic assembly.

40 The sequence of assembly of the marking pen as shown in FIG. 1 is as follows. The container 1 is initially drawn from a single piece of metal such that it forms an integral shell having one end closed. The wick 12 is then inserted through the open end of the shell and the neck portion rolled or spun to give the configuration shown after which the container is filled with ink. The nib is inserted into a nib holder and then the nib holder is in turn forced into the open neck whereby the assembly of the marking pen is completed.

45 It is seen that the nib holder provides a firm support for the nib which insures easier writing. In addition the nib holder provides uniform support to the nib so that portions of the nib are not crushed which would affect the flow of the ink through the nib and thus the quality of the writing. Also, because the nib is assembled into the nib holder prior to the holder being inserted into the container, the height of the nib above the nib holder can be kept uniform so that a particular production batch of writing pens will have similar writing characteristics.

50 A further advantage of utilizing the nib holder according to the invention is that nibs of different sizes may be readily assembled to the container, the only difference in the holders being the size of the opening 10 contained in the nibs. This facilitates assembly of marking pens which may mark in either broad or fine lines. In addition the

3

user may vary the size of the nib merely by removing a nib holder and nib and replacing the same in the container with a different size nib and nib holder.

A still further advantage of the constructions shown is that the marking pen assembly may be refilled with ink when the ink supply is exhausted which is not feasible where the nib is staked permanently in the container. This may be done by removing the nib holder and nib and then filling the container with ink and replacing the nib and nib holder in the container.

Preferably the nib holder is made of plastic material in order that it may be easily made on injection molding machines. In addition, by making the nib holder of a resilient plastic material, the skirt will then have sufficient resiliency to securely hold the nib holder within the container.

I claim:

1. An ink marking pen assembly comprising a cylindrically shaped integral container having an open reduced neck portion at one end and a closed portion on the opposite end, a cylindrical opening in said neck portion, a ferrule extending into said cylindrical opening and engaging the inner side walls of said neck portion, a should-

4

der on said ferrule engaging the open end of said neck portion, a writing nib of uniform cross section extending through said ferrule into said container with a greater part of the outer periphery of said nib being engaged by said ferrule to position said nib in said ferrule, said ferrule supporting said nib by slight uniform pressure on said periphery, and a breathing vent extending through said ferrule adjacent said nib to connect the interior of said container with atmosphere.

2. An interior marking pen assembly according to claim 1 having in addition a removable cap sealingly engaging the outer periphery of said neck portion whereby when said cap is sealed onto said neck portion the contents of said container are positively sealed from atmosphere.

References Cited by the Examiner

UNITED STATES PATENTS

3,003,181	10/1961	Rosenthal	15-563
3,089,182	5/1963	Lofgren	15-563

CHARLES A. WILLMUTH, *Primary Examiner*.

P. R. ARVIDSON, S. E. BECK, *Assistant Examiners*.