March 5, 1946. K. RATH 2,396,058

MARKING PEN

Filed June 23, 1944

Fig. 2

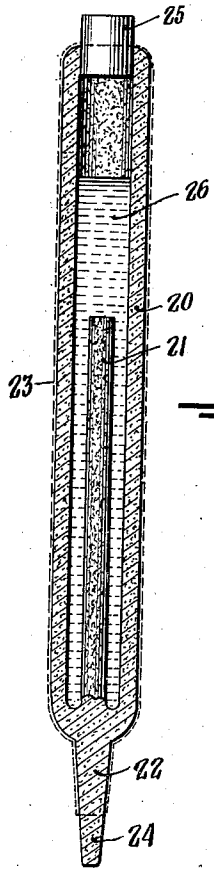


Fig. 1

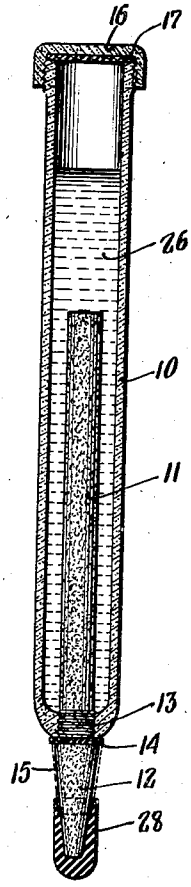


Fig. 3

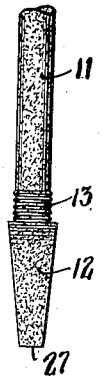
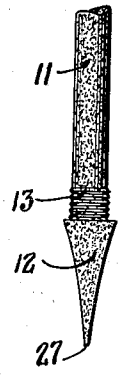


Fig. 4



INVENTOR.

Karl Rath

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2,396,058

MARKING PEN

Karl Rath, New York, N. Y., assignor to Radio Patents Corporation, New York, N. Y., a corporation of New York

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8 Claims. (Cl. 120—43)

My invention relates to writing appliances and more particularly to a lettering brush or marking pen for use in stores, offices, schools, shipping houses, etc., for addressing envelopes, cases, cartons or the like, for lettering or making designs on posters, signs, price tags, and for various other uses.

An object of my invention is to provide a device of this character which is both simple and cheap to make; which does not deteriorate in use and has a practically unlimited life; which is free from smudging, clogging and other defects of similar devices known in the art; which insures a continuous and uniform flow and discharge of writing fluid; which can be easily refilled; and which can be readily adapted for different shapes and sizes to suit the personal desire and existing requirements.

These and further objects of my invention will become more apparent from the following detailed description taken in reference to the accompanying drawing forming part of this specification and wherein

Figure 1 is a vertical cross-sectional view through a marking pen embodying the principles of the invention;

Figure 2 is a cross-section similar to Figure 1, showing a modification of the invention; and

Figures 3 and 4 are fragmentary front and side views illustrating a further modification of the invention.

Like reference numerals identify like parts in the different views of the drawing.

With the aforementioned objects in view, the invention in one of its embodiments involves the provision of a rigid porous member or rod projecting from the inside to the outside of an ink-holding barrel of suitable size and shape to fit the hand, the projecting end of said rod forming a writing head or tip and the inside portion serving to absorb sufficient amount of ink to be carried to said head by capillary action through the pores in said rod, in such a manner as to insure a continuous and uniform flow of writing fluid to the discharge end of said tip.

Referring more particularly to the drawing, Figure 1, the numeral 10 represents an oblong container or barrel-shaped holder consisting of any suitable material such as metal or a synthetic composition matterial such as Bakelite or the like. Mounted within the barrel 10 in liquid-tight and removable manner is a concentric cylindrical porous member or rod 11 of ceramic or equivalent material terminating in a head or writing tip 12 projecting from the lower end of the barrel 10.

Feeding rod 11, in the example illustrated, is provided with a screw thread 13 engaging a similar internal thread in the lower end of the barrel 10, whereby to enable writing tips of different size and shape to be used interchangeably to suit the personal desire and special requirements.

A gasket 14 of rubber or the like interposed between a shoulder or offset of the rod 11 and the barrel 10 serves to provide a liquid-tight seal or joint to prevent writing fluid in the barrel from leaking through at this point.

The writing tip 12, which in the example shown has a tapering or frusto-conical shape of circular or any other cross-section, is provided with an impervious coating 15 of lacquer, varnish or the like extending to a certain point from its apex or discharge area to prevent leaking of writing fluid from the upper cone surface and to limit the feeding of fluid to the lower or discharge end of the tip 12 which is in contact with the writing surface during the use of the device. Alternatively, the protective surface 15 may be produced by glazing the outer ceramic surface of the tip 12 in accordance with well known processes in the art.

The upper end of the barrel 10 is closed by a screw-on cap 16 and gasket 17 or in any other suitable manner for introducing a writing fluid such as a highly fluid and quick drying ink indicated at 26.

By the proper choice of the material of the rod 11 having a suitable porosity in relation to the characteristics of the writing fluid used, the latter will be readily absorbed by and carried through the pores or interstices of the rod 11 by capillary action to the tip 12 in such a manner as to insure a sufficient supply and continuous flow of fluid at the discharge end to enable the tracing of a continuous line at an average writing speed.

Porous ceramic or other materials useful for the purpose of the invention are available on the market and can be easily produced by mixing a mass of ceramic or other material with particles of wax or another highly meltable filler which is removed by heating after the rod and tip have been moulded in final shape. By the proper choice of the initial particle size and the amount of filler used, a desired degree of porosity by the open spaces or interstices formerly occupied by the wax or other filler may be obtained in such a manner as to insure a uniform and continuous feed of writing fluid of given fluidity or viscosity. The writing fluid or ink used is preferably of the highly fluid or quick drying type which not only will afford an instantaneous drying but will prevent clogging or smudging and other defects experienced with pens or writing appliances of this type.

One of the main advantages of a marking pen of the type described is due to the fact that the writing head or tip consisting of substantially rigid though porous material is substantially free from wear or deterioration whereby to maintain

its shape permanently and to prevent clogging and smudging and other defects.

Although ceramics have been mentioned as a porous material, other materials such as porous metals or alloys moulded or sintered from suitable metal powders may be used for the purpose of the invention as is readily understood.

Referring to Figure 2, there is shown a modified form of a marking pen in accordance with the invention. According to this modification, the barrel 20 and writing tip 22 form a single integral unit made of moulded porous ceramic or other material. If desirable, a concentric reentrant stem 21 may be provided also moulded integrally with the barrel 20 and writing tip 22, to increase the absorption or amount of fluid fed to the discharge end 24 of the tip 22. However, the stem 21 may be omitted by using a suitable writing fluid and a material of proper porosity.

There is furthermore shown in Figure 2 a simple removable plug of rubber or the like liquid-tightly closing the upper end of the barrel 20.

In the case of Figure 2, the outer surface of the barrel 20 is coated with a protective layer 23 produced by a glazing process or the like, to prevent the ink from reaching the outer surface and to feed it only to the discharge end 24 of the tip 12 in a manner well understood.

The shape and size of the writing tip may vary in any desired manner and as shown in the construction according to Figure 1, different tips may be interchangeably connected to the barrel to suit the personal desire or special requirements. Thus, in Figures 3 and 4 there is shown a flattened tip 12 terminating in a narrow line-shaped discharge surface 27 for use in connection with round or similar script.

Other shapes and designs of the discharge tip or configurations of the actual writing surface will readily suggest themselves in accordance with the scope and spirit of the invention.

A pen of the type according to the invention is especially suited for use in connection with a suitable lettering or other guide for quickly producing letters, numbers, or any other designs, as is readily understood.

In order to prevent leaking of the writing fluid in the non-use position of the pen, or to enable the pen to be placed in any position when not in use, a protective cap 28 of rubber, Bakelite or the like, is placed over the tip 12 to be held in place by friction or in any other suitable manner.

While I have shown and described in the foregoing a few desirable embodiments of my invention, it is understood that this disclosure is for the purpose of illustration and that various changes in shape, proportion and arrangement of parts as well as the substitution of equivalent elements and materials for those herein shown and described may be made without departing from the spirit and scope of the invention as set forth in the appended claims. The specification and drawing are accordingly to be regarded in an illustrative rather than in a limiting sense.

I claim:

1. A marking pen comprising a barrel, and a concentric porous member of ceramic material removably and liquid-tightly secured in said barrel and having a portion located inside said barrel and another portion forming a tapering writing tip projecting outwardly from said barrel, said member having a porosity whereby to cause a writing fluid in said barrel to be absorbed thereby and fed by capillary action to said tip.

2. A marking pen comprising a barrel, a rod-shaped porous member of ceramic material removably and liquid-tightly secured in said barrel and having a portion located inside said barrel and another portion forming an outwardly tapering writing tip and projecting concentrically from one end of said barrel, said member having a porosity whereby to cause a writing fluid in said barrel to be absorbed thereby and fed by capillary action to said tip, and a fluid-impervious coating upon a portion of said tip to confine the discharge of writing fluid to a limited area at the outer end thereof.

3. A marking pen comprising a barrel, a rod-shaped porous member of ceramic material liquid-tightly screwed in one end of said barrel and having a portion projecting into said barrel and another portion forming an outwardly tapering writing tip projecting concentrically from said barrel, said member having a porosity whereby to cause a writing fluid in said barrel to be absorbed thereby and fed by capillary action to said tip.

4. A marking pen consisting of a barrel-shaped member of porous material having an integral concentric extension forming a writing tip and projecting outwardly from said barrel, said member having a porosity whereby to cause a writing fluid therein to be absorbed and fed by capillary action to said tip, and a fluid-impervious coating upon said barrel and a portion of said tip to confine the discharge of writing fluid to a limited area at the outer end of said tip.

5. A marking pen consisting of a barrel-shaped member of porous material having an integral concentric extension forming an outwardly tapering writing tip projecting from one end of said barrel and terminating in a substantially flat writing surface of predetermined configuration, said member having a porosity whereby to cause a writing fluid therein to be absorbed and fed by capillary action to said tip, and a fluid-impervious coating upon said barrel and a portion of said tip to confine the discharge of writing fluid to a limited area at the outer end of said tip.

6. In a marking pen consisting of a barrel-shaped member of porous ceramic material having an integral concentric extension forming a writing tip, said member having a porosity whereby to cause a writing fluid therein to be absorbed and fed to said tip by capillary action, and a fluid-impervious coating upon said member and a portion of said tip to confine the fluid discharge to a limited area at the outer end of said tip.

7. In a marking pen consisting of a barrel-shaped member of porous ceramic material having an integral concentric extension forming a writing tip, said member having a porosity whereby to cause a writing fluid therein to be absorbed and fed to said tip by capillary action, said member and a portion of said tip having a glazed outer surface to confine the fluid discharge to the area at the outer end of said tip.

8. A marking pen comprising a barrel and a concentric member of porous ceramic material extending from the inside to the outside of said barrel and terminating in a writing tip, said member having a porosity whereby to cause a writing fluid in said barrel to be absorbed thereby and fed by capillary action to said tip.

KARL RATH.