May 22, 1934. T. KOVÁCS 1,959,959

INK PHIAL OR FILLER

Filed June 26, 1930

Fig.2

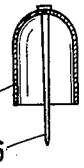
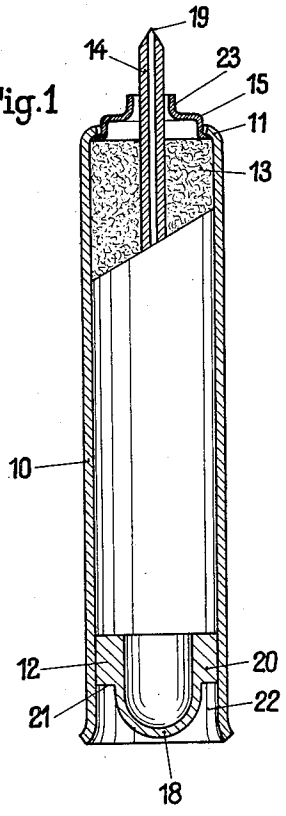


Fig.1



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INK PHIAL OR FILLER

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2 Claims. (Cl. 215—58)

This invention relates to an improved ink phial or filler for filling drawing pens or reservoir pens with India ink or writing ink.

Such ink phials have heretofore consisted of a hard vessel having an ejecting nozzle and a soft rubber end bulb. They were intended for permanent use and were provided with a screw cover for refilling purposes. These phials are not suitable for storing drawing ink for various reasons. The screw cover may become tightly fixed, or the ink which dries at the joints may give rise to leakage. Sediment may also become dried up in the fine nozzle when the phial is opened and emptied, and the nozzle is difficult then to clean. Moreover when refilled the fresh ink may be contaminated by dirt or the like or by sediment which remains from the previous filling of ink.

According to the invention the hard vessel, the nozzle and the elastic end bulb are united by permanent connections to form a non-refillable phial, preferably by pushing a tightly fitting elastic bulb and a tightly fitting plug or stopper provided with a nozzle into a section of cylindrical tubing. In this manner an ink cartridge is obtained which combines security of transport with cheapness to such an extent that it can be supplied ready packed for sale and can be thrown away when empty. The dirty operation of refilling and the previously mentioned inconveniences are thus avoided.

The pressure bulb forming the bottom end of the vessel is pushed so far into the tube as to be secure against unintentional pressure contact.

The nozzle is made of somewhat elastic material, preferably hard rubber, and sealed by means of a needle fitting tightly into the nozzle. It is thus possible to effectively seal the nozzle without the use of a separate screw cap and it can also be easily opened even if ink has dried at the nozzle. The nozzle can be tapered with this method of closing it, in order to facilitate the charging of drawing pens, which is not possible with the usual screw cap applied to phials, as heretofore used. On account of the elasticity of the hard rubber nozzle any slight differences in dimensions are not serious and thus cheap manufacture on a mass production scale is possible.

The member inserted in the upper end of the tube consists of a plug or stopper into which a tubular nozzle is inserted. The inner end of the plug is bevelled in order that hard particles can collect in the deepest part of the vessel when the nozzle is turned downwards and thus be prevented from choking the nozzle, as well as in order that the liquid will be guided away from the inner end of the nozzle when the latter is upturned.

The accompanying drawing shows an example of the manner in which the invention may be carried into effect.

Fig. 1 shows one construction of ink phial in vertical section with its sealing means in place, and Fig. 2 shows a vertical section of the sealing means.

In the construction shown a tubular vessel 10 is provided made of hard rubber or vulcanite of uniform diameter throughout (except at its extreme upper and lower ends). A soft rubber bulb cap 12 is adapted to fit tightly into the tube 10 and is pushed so far into the vessel that it does not protrude. A flanged neck 15 and a plug 13 are held in place by an inturned edge 11 on the vessel 10. At the lower end the vessel is bent slightly outwards in order that the bulb cap may be more accessible. As the vessel 10 in this construction is not of glass or other brittle material it does not require any protecting casing and itself protects the soft rubber bulb 12 against lateral pressure. Before the vessel is filled and before the upper end of the vessel is bent inwards the cap 12 is pushed from the nozzle end towards the bottom. The vessel is now filled, the plug 13, together with the nozzle tube is then inserted, and the inturned end 11 of the vessel is then finally formed.

The cork plug or stopper 13 has fixed therein a hard rubber nozzle tube 14. The inner end of the plug 13 is beveled as shown, and the inner end of the nozzle tube 14 is correspondingly beveled, so as to be flush with the plug 13. The outer end of the tube 14 is tapered or sharpened to a chisel or wedge shape as shown at 19, to facilitate filling mechanical drafting pens or the like directly from the nozzle itself.

The rubber cap 12 comprises a relatively heavy cylindrical portion 20 and a thinner portion 18, of substantially hemispherical shape as shown, and the cylindrical portion is of such size and thickness that it will fit tightly and securely in the rubber tube 10 when forced thereinto.

The outer diameter of the thinner or bottom portion 18 of the cap 12 is smaller than the outer diameter of the heavy cylindrical base portion 20, so that where the portions 18 and 20 join, an outer shoulder 21 is formed. After forcing the cap 12 into the tube 10 the shoulder 21 and the dome-shaped portion 18 form an intermediate space 22 together with the tube 10. When assembling the cap into the tube 10, a tube having an inner diameter corresponding to the outer

diameter of the portion 18 may be placed over the portion 18 and against the shoulder 21 so that the cap may be forced conveniently into the tube 10. The intermediate space 22 further makes it possible to provide room into which the portion 18 may extend when pushed, so that a comparatively large volume of fluid may be forced from the tube 14 under controlled conditions.

The flanged neck or collar 15 is secured in the end of the tube 10, between the tube and the stopper 13. The said collar has a tubular flange or spud 23. The needle 16 which fits closely in the bore of the nozzle tube 14, has a bell shaped cap 17 secured to its upper end, to serve as a convenient handle for the needle. This cap 17 fits over the spud 15 when the needle is in place as a stopper, and acts as a protective cap, keeping out dust and dirt, and protecting the nozzle tube from breakage.

In the claims affixed to this specification no selection of any particular modification of the invention is intended to the exclusion of other modifications thereof and the right to subsequently make claim to any modification not covered by these claims is expressly reserved.

I claim:—

1. Non-refillable bottle for inks consisting of a section of a cylindrical tube made of rigid material, a stopper tightly and securely forced into one end of the tube section, a nozzle tube made of somewhat elastic material secured in the stopper, a collar arranged upon the stopper and having a spud surrounding the nozzle tube, a flange upon the edge of the tube section which secures the collar and the stopper, a needle fitting tightly into the nozzle tube and provided with a bell-shaped handle which surrounds the spud, and an elastic pressure cap tightly seated in the other end of the tube section and completely enclosed by the tube.

2. A non-refillable ink bottle consisting of a rigid container portion, a closure stopper provided with a nozzle, and inserted into one end of the container portion, said stopper and nozzle being bounded by a surface inclined to the axis of the container, upon their inner ends, and an elastic pressure cap inserted into the other end of the container.

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