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PEN POINT

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1 Claim. (Cl. 120—109)

This invention relates to pen points and instruments adapted for writing, drawing, and the like; and more particularly to an alloy for making such pen points.

Heretofore, it has been the general practice, especially for use in fountain pens, to make pen points of gold; and in some instances pen points have been made of tantalum, tantalum alloys, or Monel metal.

The use of gold for pen points is objectionable in that gold is expensive and difficult to obtain. The use of tantalum and tantalum alloys is objectionable in that they are difficult to handle during the process of manufacturing pen points, since tantalum and its alloys cannot be annealed in the open air or in hydrogen or nitrogen, and the annealing process must be carried on in a vacuum. The use of Monel metal is objectionable because of its very high melting point, which makes it very difficult to weld the hard nibs of iridium or similar metals to pen points.

It is an object of this invention to construct a pen point from an alloy of relatively inexpensive and readily available metals, which alloy can be conveniently annealed and worked and which has a melting point low enough to enable hard nibs to be conveniently welded to the pen points.

A further object is to provide a pen point made from an alloy which contains as main constituents silver, copper and zinc, with cadmium or nickel or cobalt or tin, or combinations thereof, as minor constituents.

These and other advantageous objects, which will later appear, are attained by the use of an alloy such as is disclosed in the following example:

In accordance with my invention, a pen point is made of an alloy consisting mainly of silver, copper, and zinc. For example, a suitable alloy can be made by combining the constituents in the following proportions:

200 to 750 parts silver
450 to 150 parts copper
350 to 100 parts zinc

The workability of alloys made using the above combinations is considerably improved by adding up to 100 parts of cadmium substituting zinc partly or totally. The toughness, hardness and especially the resiliency are increased by adding nickel, cobalt, tin, or combinations of these metals, in a minor degree, up to 125 parts; in a similar way gold or palladium can be used. The addition of these metals improves the resistance to corrosion, and the alloys become practically non-tarnishing when they contain the last named metals up to the saturation point of the respective basic alloys of silver, copper and zinc, or silver, copper, zinc and cadmium. Nickel and cobalt are most soluble when the silver content is low; and they become less soluble as the silver content of the basic alloy is increased.

Alloys made in accordance with the above example are corrosion and tarnish-resisting, and are much less oxidized than sterling silver when heated in air. In fact, they retain their brilliant surface completely when they are quickly heated in air, for example, with a blow pipe. This characteristic makes these alloys especially suitable for mass production of pen points.

These alloys have low melting points (of about 1325° F. to 1600° F.) which enables hard nibs to be conveniently and completely welded to pen points in rapid manner. When a nib is welded to a pen point made from one of the above alloys, the nib is substantially enveloped by the alloy, after which the nib is polished to remove a portion of the alloy to present a writing surface.

By substantially enveloping the nib, it is attached to the pen point more effectively than heretofore has been the case with pen points.

As the silver content of the alloys is decreased, the color thereof approaches the color of the different gold alloys. The alloys can also be plated with gold, platinum, palladium, rhodium, chromium, or any other non-corrosive finishing metals or metal combination. Pen points made from the above alloys and plated with one of these metals or metal combinations are non-corrosive. These plated pen points compare most favorably with the well known gold alloys as to corrosion-resistance; and exceed them as to toughness, hardness and resiliency.

From the above description, it will be seen that I have presented a novel pen point which can be readily and conveniently made at a comparatively low cost, at the same time retaining all of the advantageous characteristics of pen points made from expensive gold alloys and the like.

The foregoing disclosure is to be regarded as descriptive and illustrative only, and not as restrictive or limitative of the invention, of which obviously modifications may be constructed without departing from the general scope of the claim.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

A pen point constructed of a silver solder comprising principally 75 parts of silver, 15 parts of copper and 10 parts of zinc.

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