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PEN NIB

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5 Claims. (Cl. 120—109)

This invention relates to pen nibs, more particularly those intended for fountain pens, and to the preparation of alloys therefor.

The usual gold nibs are expensive and moreover there is a demand for nibs of a white color. Stainless steel nibs, which have recently found some use, provide the desired white color and are less expensive than gold nibs, but they have an objectionable stiffness.

Alloys intended for the preparation of pen nibs must have springiness, must be easily shaped and cold worked, and the cold work should impart considerable hardness.

We have now found that the above desired results are obtained by the addition of a small amount of copper to alloys of silver and palladium. The amount of copper should be at least 5% and is preferably not more than 35%. We prefer to use between 5 and 20% of copper. The proportions of palladium and silver should be such that the alloys are not corroded by ink. The minimum amount of palladium to resist corrosion by ordinary inks appears to be about 25% and for more highly corrosive inks a minimum amount of about 35% of palladium is necessary. We prefer, however, to use more than 50% of palladium and, having regard to the question of expense, the upper limit of palladium should not usually exceed 70%.

In the melting of the alloys, a small amount of phosphorus may be added, preferably in the form of copper phosphide, in order completely to deoxidize the alloy and to produce sound castings free from brittleness which can be readily rolled into sheet. The amount of phosphorus used may range between about 0.005 and 0.05%.

The following table gives the compositions of some suitable alloys:—

	Palladium	Copper	Silver	Phosphorus
1	52	10	38	0.02
2	60	10	30	nil
3	70	10	20	nil
4	60	15	25	0.02

The nibs obtained with the alloys according to this invention are superior to those obtained with gold or stainless steel. They have better springiness and furthermore do not show the objectionable stiffness encountered in stainless steel nibs. They write very smoothly, have a pleasing soft white color and are less expensive than gold nibs. The hard points may be welded on quite as readily as in the case of gold nibs and more readily than in the case of stainless steel nibs, the welding being effected in the usual manner for example by gas welding or electric welding.

If it is desired to alter the appearance of the nibs so that they resemble gold nibs, a plating of gold may be applied by the usual methods. If nibs of better whiteness are preferred, they may be plated with rhodium.

What we claim is:—

1. As a new article of manufacture, a pen nib consisting solely of more than 50% of palladium, from 5 to 20% of copper and from 5 to 44% of silver.

2. As a new article of manufacture, a pen nib consisting solely of more than 50% of palladium, from 5 to 20% of copper and from 5 to 44% of silver deoxidized with from 0.005 to 0.05% of phosphorus.

3. As a new article of manufacture, a pen nib consisting of 52% of palladium, 10% of copper and 38% of silver deoxidized with 0.02% of phosphorus.

4. As a new article of manufacture, a pen nib consisting of 70% of palladium, 10% of copper and 20% of silver.

5. As a new article of manufacture, a pen nib consisting of 60% of palladium, 15% of copper and 15% of silver deoxidized with 0.02% of phosphorus.

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