

WORKSHOP NOTES.

CLEANING SILVER.—To produce a frosted surface upon polished silver use cyanide of potassium with a brush, the silver should not be hauled during the process, but held between pieces of boxwood or lancewood. The proportion should be one ounce of cyanide of potassium to one pint of water. But be cautious, since the stuff is very poisonous.

TRANSPARENT CEMENT.—A good transparent cement for fastening watch glasses, etc., in bezels or settings is made by dissolving 7 parts of clear gum arabic and 3 parts crystallized sugar in distilled water; the bottle containing the mixture should be placed in a utensil of hot water until the mixture assumes the consistency of syrup, and then left well corked for use.

REDUCING DIAMETER OF A WATCH GLASS.—The diameter of a watch glass can be reduced by centering in a lathe, chucking it between two pieces of cork, or a pair of cork arbors, and applying a moistened piece of glass to the edge, or an emery stick. When the desired diameter is attained, polish the edge with pumice stone, followed by putty powder applied on a wet cork.

CLEANING BRONZE.—A very good recipe for cleaning bronze, steel, brass, etc., and one I have used with great success in cleaning gas holders, troughs, etc., is as follows: Take 1 ounce of oxalic acid, 6 ounces rotten stone, $\frac{1}{2}$ ounce gum arabic in powder, 1 ounce sweet oil, and a sufficient quantity of water to make a paste. Apply a small portion to the article and polish with a flannel or a piece of soft leather.

ELECTRO BRASS PLATING.—Mr. J. J. Heoz uses the following bath, which differs materially from former formulæ: 84 grains sodium bicarbonate, 54 grains ammonium chloride, and 13 grains potassium cyanide are dissolved in 2 liters of water. To render the bath active the sides of the bath are covered with a sheet of brass, which serves as anode, while another piece of brass hangs in the bath and forms the cathode. The current is allowed to pass through the bath for 1 hour, after which it is ready for use. It is better to use cast brass.

TO STRAIGHTEN A STEEL ROD.—When the rod is short use a large pair of sliding tongs or a hand vice, the jaws of which have been softened in order to make a groove in each parallel to the edge. Placing the rod in the cylindrical recess thus formed between the jaws, fix one side of the hand vice in a bench vise, holding a spirit lamp near the jaws, and as the steel changes its color, tighten the slide or screw of the former. When the metal assumes a blue color, and the jaws are as tight as possible, remove the lamp, allowing the whole to cool slowly or by applying water. The jaws should be formed so as to bend the rod rather more than is ultimately required, because steel, on being released is apt to partially recover its initial curvature. When the rod is long, grip its two ends in the frame of a fret-saw, which should be somewhat strong. Then hold a lamp under the rod, at the same time stretching the steel more and more, and allow the steel to remain stretched until quite cold. If it has been sufficiently stretched the metal will be rendered perfectly straight.

OTHER NOTES.

An engraver in Versailles, whose name is not given, is said to affirm that he has discovered a method for taking photographs in colours, being able thus to reproduce the colours of the individual or landscape photographed.

A MILWAUKEE man has been digging for diamonds in the gravel strata near Waukesha, Wis. He found what is spoken of as a "splendid specimen" last week, and another not so perfect in crystallization. He is also reported to have found good specimens of other stones. Make way for the diamond boom.

The finest rubies are found in Java, Siam, and Peru; others are found in India, Ceylon, Australia, Borneo, and Sumatra. The Burmese mines have long been famous; the working of them is a royal monopoly, and the King has among other titles that of Lord of the Rubies. The Brazilian ruby is declared to be a pink topaz, inferior to the true ruby, yellow in its natural state, and coloured artificially.

The magnetic pole is constantly shifting to the eastward or westward of the geographical pole, being now 1,000 miles west. In 1657 it was due north, in 1816 at its western maximum, and in 1976 will be again due north, when it will take an eastern trip. These variations must give the surveyors something to do in running over old lines, and showing that the surveyors of early times did not know what they were about—discrepancies that may, in fact, be due to the shifting of the pole and the varying influences on the compass needle.

We are told that out of the nine telegraph cables that now stretch from Continent to Continent under the Atlantic only three are in working order, and that of these three one only works one way. This last statement seems very singular, but is made on excellent authority. The fact is that the life of a submarine cable is limited at best, and that from eleven to fourteen years generally uses up the best of them. The idea, once prevalent, that a cable once safely laid down was good for all time has had to give way before discovered facts.

A GENERAL impression exists that slow-grown timber is the strongest, but this opinion does not, it is said, stand the test of experiment. There is in London a Government establishment for testing the quality and strength of all woods and metals used for Government purposes, the chronicles of which are said to be very interesting. Among other things which have been proved there is the fact that fast-grown timber—oak at least—is the strongest, and bears the greatest degree of tension.

Cycling has assumed proportions in England such as no one dreamt of a few years ago, and the invention of tricycles available for ladies gave it a new start. There has been a most active emulation among manufacturers to produce the best article, and it is thought that this has now been attained. The clubs have arrangements with certain hotels throughout the country to accommodate them at exceptionally low rates. The most favorite route out of London is the old Bath coaching road, on account of its smoothness, but in most districts the roads are of a quality to make the American rider very envious.

An Ohio man has, it is said, succeeded in devising an electric lamp as a headlight for a locomotive that will not prove a failure as many others have. It is so perfectly balanced that the carbons cannot shake together with the jarring of the engine. It is run by a little engine and dynamo placed on the side of the locomotive back of the Westinghouse air brake. The engine is, of course, in constant motion, and fed direct from the boiler by an eighth-of-an-inch tap. This invention will make travelling at night safer than in daytime. The electric light will show an obstruction a mile away. Collisions mostly occur on curves, but the cone of light sent out from one of these headlights would pierce the darkness so far in a straight line as to be seen from any part of the curve.

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