Horology and Goldsmith's Work.

FORMULAS AND PROCESSES.

(*Continued from page 54.*)

DRY COLORED GOLD ALLOYS.—In all these recipes, unless otherwise expressed, the constituents named will always mean fine gold, fine silver, and refined copper, unless the contrary is stated.

ALLOY FOR DRY-COLORED RINGS. 17 K. — Gold 1 oz.; silver 4 dwts., 6 grs. ; copper 4 dwts., 6 grs.

SOLDER FOR THE ABOVE. — Scrap gold 2 oz.; silver 3 dwts.; copper 3 dwts.

OF DRY COLORING THE FOREGOING ALLOYS.—This is done as follows: Having your work well polished, take of saltpetre, alum, and salt in proportion to the work to be colored; say, for 2 oz. of work, as under, viz.:—Saltpetre, 8 oz.; alum, 4 oz.; salt, 4 oz. Procure also a blacklead pot, four or five inches high, or an iron pot cast from a blacklead pot; one or two sizes will be useful. To perform the process of dry-coloring, you must have a thin iron bar to stir your "color" when dissolving. Your work cannot be too well polished; it is then cleaned with soda, soap, and hot water, and dried in box sawdust. It must be afterward covered with a thin layer of borax; annealed and boiled out, and again dried in box sawdust; and finally hung on platinum, or fine silver wire. When the "color" is in the pot, it is placed in the fire on a forge, and blown with bellows; it soon boils up. The heat cannot be too strong. When it assumes a brown-yellow flame, the work is dipped in for two or three seconds, and quenched in hot water diluted with muriatic acid, which removes any "color" that may adhere to the work. This ought to produce the color required; if it does not come, the same process must be followed again; but the work must be well dried before going into the "color," otherwise it will fly about, the burn or scald from which is very severe. Indeed, it is recommended to wear an old glove to save the hand. The color-pot must be emptied immediately upon the forge, so that it may be ready if required again. In this process of coloring it is necessary to be very quick, whereas in wet-coloring it takes time. The waste "color" may be thrown into the sweep, as the gold lost is trifling.

WET COLORED GOLD ALLOYS.— No. 1. 15 k. —Gold 1 oz.; silver 3 dwts., 12 grs.; copper 9 dwts.

No. 2. 14 k. — Gold 1 oz.; silver 4 dwts.; copper 9 dwts., 12 grs.

No. 3. 14 k. — Gold 1 oz.; silver 4 dwts., 12 grs.; copper 10 dwts.

No. 4. 13 k. —Gold 1 oz.; silver 4 dwts., 12 grs.; copper 10 dwts., 12 grs.

GREEN GOLD FOR FANCY WORK. — No. 5. 18 k. — Gold 1 oz.; silver 6 dwts., 16 grs.

GREEN GOLD.— No. 6. 20 k.— Gold 10 dwts.; silver 2 dwts., 2 grs.

GREEN GOLD.— No. 7. 19 k.— Gold 5 dwts.; silver 1 dwt., 12 grs.

RED GOLD, FOR FANCY WORK.—No. 8. 16 k.—Gold 5 dwts.; copper 2 dwts., 12 grs.

RED GOLD. —No. 9. 19 k. (20 k, so called)— Gold 5 dwts.; copper 1 dwt., 6 grs.

To make gold solder for the foregoing alloys, take of the alloyed gold you are using, 1 dwt.; silver 6 grs. Or, 5 grs. of silver and 1 gr. of copper may be used.

ANOTHER SOLDER. — Gold alloyed 1 dwt.; silver 5 grs.; pin-brass 1 gr.

This solder is good for repairing, and will not disturb the solder first mentioned. It will color well.

ALLOY.—No. 10. 15 k.—Gold 1 oz., 18 dwts.; silver 12 dwts., 12 grs.; copper 10 dwts.

No. 11. 14 k.—Gold 1 oz.; silver 8 dwts.; copper 4 dwts.

No. 12. 13 k.—Gold 1 oz.; silver 6 dwts.; copper 8 dwts.

No. 13. 13 k.—Gold 1 oz.; silver 4 dwts., 12 grs.; copper 10 dwts., 12 grs. This is usually employed by the London jewelers for their 14 k. work.

VERY FINE COLOR.—No. 14. 16 k.—Gold 1 oz.; silver 6 dwts.; copper 4 dwts.

GOLD SOLDER FOR THE ABOVE. — Gold scrap 1 oz.; silver 5 dwts.

METHOD OF REDUCING ENGLISH SOVEREIGNS TO LOWER FINENESS. — No. 1. 14 k.—Coins 1 oz.; gold 8 oz.; silver 2 oz.; copper 4 oz., 14 dwts.

No. 2. 14 k.—Coins 1 oz.; gold 2 oz.; silver 13 dwts.; copper 1 oz., 11 dwts.

No. 3. 14 k.—Coins 2 oz.; gold 5 oz.; silver 1 oz., 9 dwts., 12 grs.; copper 11 dwts., 12 grs.

No. 4. 15 k.— Coins 2 oz.; gold 6 oz.; silver 1 oz., 14 dwts.; copper 4 oz., 2 dwts.

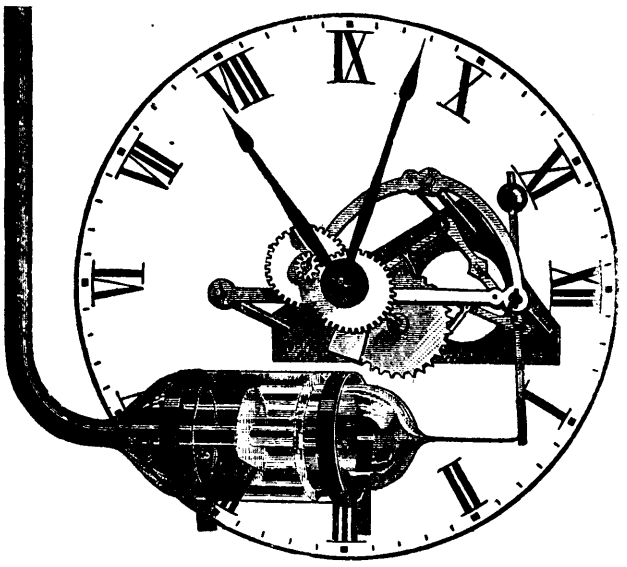
No. 5. 15 k. —Coins 2 oz.; gold 8 oz.; silver 2 oz., 3 dwts.; copper 5 oz., 3 dwts.

No. 6. 15 k.—Coins 4 oz.; gold 6 oz.; silver 2 oz., 2 dwts.; copper 5 oz., 2 dwts.

LONDON METHOD OF WET-COLORING THE FOREGOING ALLOYS. — This is performed in the following manner: Having annealed your work, and boiled it out so as to get it perfectly clean, take of saltpetre 15 oz., of alum, 7 oz. and of salt 7 oz.; pound them all fine, and mix well together; then provide a black-lead pot about 12 inches high, put your ingredients into it, and dissolve gradually. It must be on no account hurried, for if it burns, the "color" will be spoiled. As the heat increases it will boil up; then add 2 oz. of muriatic acid, when the "color" will sink in the pot. Take a wooden spoon and stir it well, when it will again boil up. Take your work, which you have made clean and tied in small parcels with platinum or fine silver wire, and immerse it in the "color" for four minutes, keeping it on the move, so that the "color" may act upon all parts alike. At the end of that time take it out and rinse it well in boiling water, which you have ready in a kettle, with pint or quart basins, according to the quantity or size of your work. Next, place your work in the "color" for one minute and a-half; take it out and rinse well in fresh hot water. Two fluid oz. of hot water must then be added, when the "color" will sink in the pot, but will rise again; put in your work for one minute, again rinsing it in fresh hot water, when you will find it begin to brighten. Lastly, put your work in the "color" for half a minute longer, rinsing it for the last time in clean hot water, after which you will find it a beautiful color. This process, by a little attention, never fails.

NOTE.—The mixture of "coloring" should be according to the weight of work. If a small quantity, say 2 oz., the proportions should be: Saltpetre 8 oz., alum 4 oz., common salt 4 oz., muriatic acid 1 oz. If 5 oz. of work, double the quantities, and so in proportion to the weight; but practice will make perfect.

(*To be continued.*)



PNEUMATIC REGULATOR FOR CLOCKS.

The pneumatic clock regulator represented by the accompanying engravings, is the invention of Mr. E. J. Muybridge, of San Francisco. It is intended to regulate with accuracy a certain number of clocks located in different parts of large cities.

The pneumatic regulator may be applied to any ordinary clock operated by weights, springs, or other motive power. It consists of a series of hollow bells, plunging into and emerging alternately from vessels filled with a liquid; by this means the air within the bells is compressed and forced through tubes into