

UNITED STATES PATENT OFFICE.

WILLIAM WHEELER HUBBELL, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN ALLOY FOR COIN.

Specification forming part of Letters Patent No. **209,263**, dated October 22, 1878; application filed February 7, 1878.

To all whom it may concern:

Be it known that I, WILLIAM WHEELER HUBBELL, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in the Metal Alloy for Commercial Coin for which Letters Patent were granted to me May 22, 1877, No. 191,146, and the following is a description thereof:

In the patent of May 22, 1877, the minimum ratio of proportion is twenty of silver to one of gold. The standard of fineness is ten-elev-enths. The density of pure silver is 10.51. The proportions are not adapted to metric measure. In this improvement the minimum is fourteen and the maximum is twenty of silver to one of gold, and the gold and silver both in metric measure. The standard of fineness is nine-tenths and the density about 11.02 when subjected to the highest coinage pressure, under which it increases more than other alloys. The standard of proportion is 16.1 to one (1) as the best.

The improvement consists in the proportions of component metals of gold, silver, and copper to increase the density, when finished into coin, above that of pure silver.

The improvement is also adapted to metric measure or weight of coin, as well as troy measure, and to the standard of nine-tenths fineness of the mass of precious metals of gold and silver. The proportions are seventy-five (75) grams in weight of pure gold, one hundred and forty-two and a half (142.5) grams in weight of pure copper, and twelve hundred and seven and a half (1,207.5) grams in weight of pure silver, sufficient to make one hundred dollars.

To enable others to make and use my invention, I declare the following to be a full and sufficient description thereof.

I melt the metals separately and pour them together, stirring and mixing them thoroughly; or I melt and mix the silver with its proportion of the copper and the gold with its proportion of the copper, the copper forming one-tenth of the whole weight. Then mix them all thoroughly together, cast into ingots, roll into strips, and anneal them. I immerse the strips in muriatic acid for about ten minutes, take them out and expose them to the air until they are dry, or about two hours. Then place them

in a strong solution of ammonia or of muriate of ammonia, or both, dissolved in water—that is, about one pound of either or half a pound of each dissolved in one gallon of water; or the strips or metal may be immersed in sulphuric acid exposed to the air, and then in a solution of muriate of ammonia and water, or in the latter solution alone. I remove them from the ammoniated bath in about one hour, and rub and clean them off with whiting and buckskin or woolen cloth, or wash in water and dry them in sawdust. Atoms of the silver color will have been removed. The surface of the coin metal will be an alloy chiefly of gold and copper of a peculiar golden color, by which this coin metal may be distinguished from either gold or silver or base metals, as well as by its greater density and more prolonged clear ring or sonorous vibrations. This is due to the nature of the alloy. Of this alloy, in the proportions described, a metric dollar of one hundred cents' value, fourteen and a quarter grams in weight, or two hundred and nineteen and nine-tenths grains in weight, finished, will contain seven and a half decagrams of pure gold, fourteen and a quarter decagrams of pure copper, and one hundred and twenty and three-quarters decagrams of pure silver, on a ratio of valuation of sixteen parts of silver as equivalent to one part of gold, and exhibit an alloy color of the gold and copper chiefly, and will be of a density above pure silver, and next to that of gold coin.

When the strips are rolled out and the surfaces finished as described, cut them into planchets and strike up the planchets into coin for use as money by means of a coin-press and suitable dies.

The density of this alloy increases under coinage-pressure much more than the density of silver and copper increases, and is above that of pure silver, and it cannot be counterfeited in density or color.

These proportions may be slightly varied. The gold may be increased as to the silver as one of gold is to fourteen of silver, and be decreased to stand as one of gold is to twenty parts of silver in weight, the copper to remain at one-tenth of the whole mass, and the density remain above pure silver within these proportions. The proportions first herein stated are

the best in all respects for density, weight, value, and color for coin, particularly of metric measure, for dollars, halves, quarters, and dimes.

What I claim is—

The alloy coin metal of gold, silver, and copper, in or about the proportions of seven hundred and fifty (750) parts of gold, twelve

thousand and seventy-five (12,075) parts of silver, and one thousand four hundred and twenty-five (1,425) parts of copper, substantially as described.

WM. WHEELER HUBBELL.

Witnesses:

E. W. GRANT,

JAMES H. HOUSTON.