(No Model.)

L. L. BURDON.

SEAMLESS COMPOUND GOLD WIRE.

No. 440,693. Patented Nov. 18, 1890.

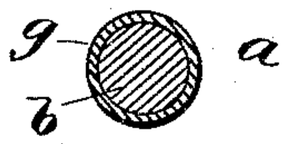

FIG. 2.

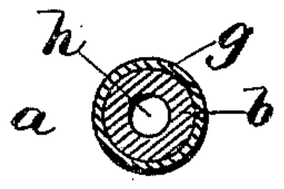

FIG. 4.

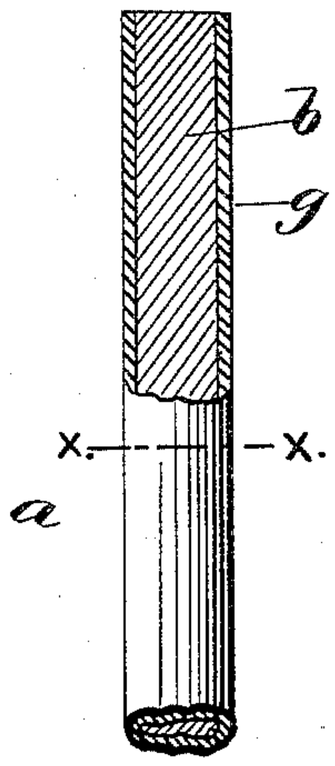

FIG. 1.

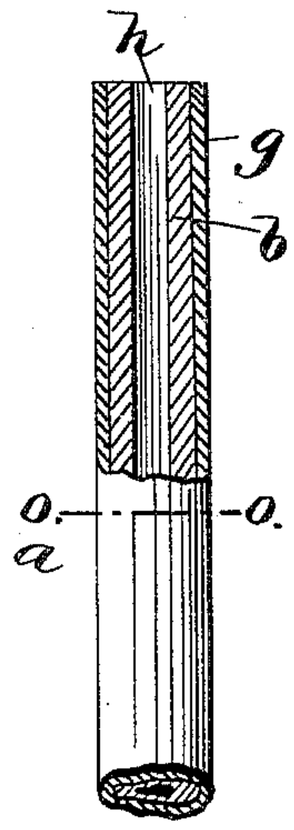

FIG. 3.

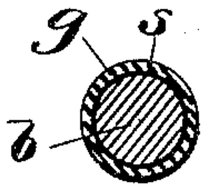

FIG. 6.

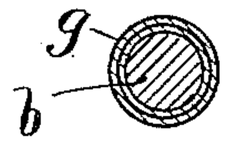

FIG. 8.

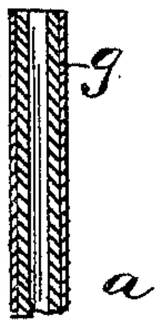

FIG. 7.

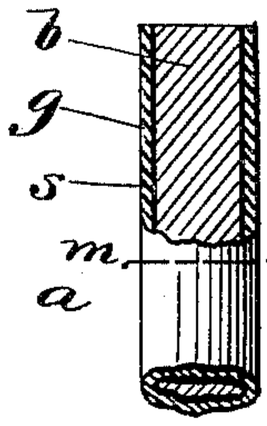

FIG. 5.

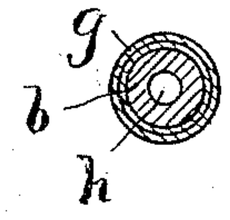

FIG. 9.

WITNESSES.

Charles Hannigan

Herbert F. Fourtellot.

INVENTOR.

Levi L. Burdon.

by Remington & Hutchison

Attys.

UNITED STATES PATENT OFFICE.

LEVI L. BURDON, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE BURDON SEAMLESS FILLED WIRE COMPANY, OF SAME PLACE.

SEAMLESS COMPOUND GOLD WIRE.

SPECIFICATION forming part of Letters Patent No. 440,693, dated November 18, 1890.

Application filed March 11, 1890. Serial No. 343,524. (No model.)

To all whom it may concern:

Be it known that I, LEVI L. BURDON, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Seamless Compound Gold Wire; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

In the production of certain articles of gold-plated jewelry—as, for example, watch-cases, thimbles, finger-rings, &c.—it is a common practice to increase the thickness of the gold of such articles at the points or places which are subjected to the most wear, the gold being comparatively thin at certain other points, as, say, the inner surface of a thimble or finger-ring. Sometimes articles of this class are "filled," as it is termed, with an inferior metal, which is considerably harder than the surface metal, although most frequently a lower-fusing or cheaper metal is used. In both cases, however, the filling metal possesses no intrinsic worth. Therefore the goods or articles made of such materials are called "plated," and are sold as such irrespective of the thickness of the gold surface.

The object I have in view is to produce a compound seamless wire made entirely of alloyed gold and adapted to be used in the manufacture of pins, rings, and other articles. By means of my improvement articles made therefrom may be stamped and sold as gold of a specified value or carat.

My present invention consists, essentially, of two or more pieces or portions of gold having varying grades or values united together and forming a seamless ingot adapted to be reduced to seamless compound gold wire—as, for example, suppose a piece of my improved seamless or all-gold wire weighing, say, one ounce has an average fineness of nine carats, the shell or exterior portion of the wire being of twelve-carats fineness and weighing five pennyweights and the inner portion weighing fifteen pennyweights of eight-carat gold. In this case the shell is equal to sixty carats and the inner portion to one hundred and twenty carats; total, one hundred and eighty carats, which, divided by one ounce or twenty pennyweights, produces an average or assay of nine-carat gold, as before stated. Take another example and in which the wire weighs one ounce and is made of three grades of gold, the average fineness being, say, six carats. In this case the seamless shell may weigh five pennyweights, fourteen carats fine, the inner or center portion fourteen pennyweights, three carats fine, and the layer of gold solder interposed between the shell and inner portions for uniting the parts together be of eight carats and weighing one pennyweight. The shell would be equal to seventy carats, the inner portion forty-two carats, and the gold-solder eight carats; total, one hundred and twenty carats, which, divided by twenty pennyweights, as before, produces in the wire an average fineness of six-carats gold.

My seamless compound gold wire may be produced by the "sweating" process—that is, the seamless exterior gold shell, which in itself may consist of two united seamless tubes of gold of different grades or values arranged one within the other, is united to the inner portion, also of gold, but of less value than the shell, by subjecting the ingot or wire to a suitable heat which melts portions of one or more of the low-fusing metals with which the said gold portions are alloyed. These low-fusing metals when thus melted mix together, thereby uniting or welding the parts to each other.

Another way of producing seamless compound wire is to take two disks of gold, one having more value or carat than the other, place one flatwise upon the other, and unite their contiguous surfaces together. Then by suitable tools and mechanism transform the now compound disk to a tubular form, which then is seamless and susceptible of being reduced to small wire. Such hollow gold wire will be seamless exteriorly, its value or carat having the same relative proportions that the compound disk possessed.

In the appended drawings, illustrating my seamless compound gold wire, Figure 1 represents in partial section a side elevation of a piece of enlarged seamless wire or small ingot consisting of two pieces. Fig. 2 is a transverse sectional view taken on line *x x*. Fig. 3 is a view similar to Fig. 1, showing a piece of seamless hollow compound gold wire. Fig. 4 is a transverse sectional view thereof, taken on line *o o*. Fig. 5 represents a piece of my improved wire having three portions, viz: a seamless exterior shell of gold, an inner portion of gold of less value than the shell, and a layer of gold having a different value than the other portions interposed between and uniting them. Fig. 6 is a transverse sectional view of the same, taken on line *m m*. Fig. 7 represents a longitudinal sectional view, reduced, of a piece of hollow seamless compound gold wire produced from a compound gold disk; and Figs. 8 and 9 show sectional views of seamless compound gold wire having compound shells.

A more extended and specific description of my improved wire is as follows:

a designates the ingot or seamless compound gold wire as a whole, composed of a seamless exterior gold portion *g* and one or more interior portions of gold having less value than the outer shell. The shell *g*, which is seamless, is made of gold suitably alloyed to produce the desired carat or grade. Obviously it should have a higher intrinsic value than the interior portions. The shell *g* may be produced in any well-known manner—as, for example, it may be drawn to a seamless tube form from a disk of gold. Sometimes the disk itself may be compound—that is, made of two or more disks of gold of different values united together by sweating or by solder, and then transformed into a seamless tubular form *g*, which may be reduced to seamless wire without the introduction of the inner portion *b*, as shown in Fig. 7.

b indicates the inner or filling portion. This is also composed of gold; but its grade or carat is less than that of the seamless exterior portion *g*. The filling portion may be solid, as shown in Figs. 1 and 2, or annular in cross-section, as in Figs. 3 and 4. The part *b* may be united to the shell by solder or by the sweating process, having first properly prepared the surfaces to be united. I make no claim herewith to means for uniting these parts together. After they have been united the piece may be reduced to wire of any desired form cross-sectionally by the usual machinery and shop appliances.

In some cases it may be desirable to produce wire having, say, three grades of gold—that is, within the outer seamless gold shell *g* is freely introduced a reduced core or filling portion *b*, solid or tubular in cross-section, of gold of much less value than the outer shell, thus forming an annular space between them. Into this space is fitted a thin shell or layer of gold *s*, having a greater value or carat than the core *b*, but a less carat than the shell *g*. This layer *s*, when the whole is subjected to a properly-heated furnace of burners, melts and serves as a solder to unite the several parts together. (See Figs. 5 and 6.)

I would state that a seamless compound gold shell *g* may have a solid or annular inner or filling portion *b* of lower-grade gold united thereto, substantially as indicated in cross-sections, Figs. 8 and 9. In such case it is evident that the ingot or wire produced therefrom would be substantially as shown in Figs. 2 and 4, except that in these last-named figures the shell is produced from gold having a uniform quality, whereas, as just stated, the shell itself, as represented by Figs. 8 and 9, is compound—that is, made of two parts or pieces of gold having different values.

I do not claim, broadly, in this application a seamless compound wire; but

What I do claim is—

1. As a new article of manufacture, a compound gold wire consisting of a seamless exterior portion or shell of alloyed gold and an inner portion or filling of alloyed gold of less value than the said exterior portion.

2. A compound gold wire adapted for jewelers' uses, consisting of a seamless exterior portion of alloyed gold united to an inner portion of gold of less value than the said exterior portion.

3. A compound gold wire consisting of a seamless exterior portion or shell of alloyed gold, an inner portion of alloyed gold of less value than the said exterior portion, and a layer of gold interposed between and uniting the contiguous surfaces of the said outer and inner gold portions.

In testimony whereof I have affixed my signature in presence of two witnesses.

LEVI L. BURDON.

Witnesses:
CHARLES HANNIGAN,
GEO. H. REMINGTON.