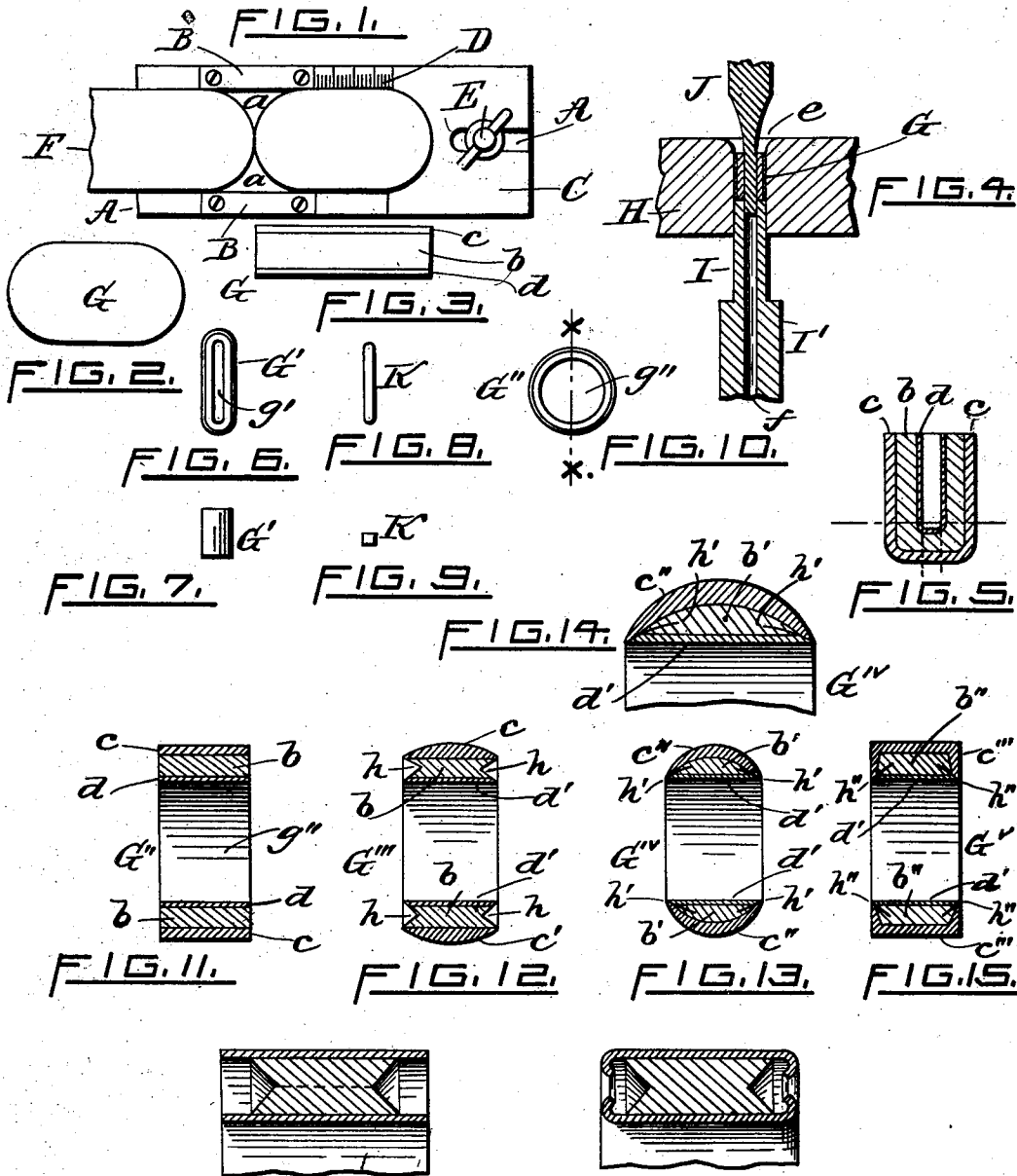


F. R. STAFFORD.  
RING.

(Application filed Oct. 7, 1901.)

(No Model.)



WITNESSES.

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FIG. 17.

INVENTOR.

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# UNITED STATES PATENT OFFICE.

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## RING.

SPECIFICATION forming part of Letters Patent No. 703,493, dated July 1, 1902

Application filed October 7, 1901. Serial No. 77,898. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK R. STAFFORD, 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 Rings, of which the following is a specification, reference being had therein to the accompanying drawings.

10 Like letters indicate like parts.

Figure 1 is a top plan view of the tool for gaging the stock for the ring-blank and for holding the same while it is cut by a suitable plunger into the desired lengths. Fig. 2 is a top plan view of one of the ring-blanks from which my improved ring is made. Fig. 3 is an edge or side view of the same. Fig. 4 is a view in vertical section of the draw-plate and plungers, together with the stock therein undergoing the drawing operation. Fig. 5 shows in enlarged central longitudinal section (on the minor axis) the cupped-up ring-blank produced by the operation illustrated in Fig. 4 at a time just before the bottom portion thereof has been perforated. Fig. 6 is a top plan view of the blank after it has been drawn and perforated by the operation illustrated in Fig. 4. Fig. 7 is an end view of the same. Fig. 8 is a top plan view of the central piece which has been removed from the ring-blank by the perforating operation illustrated in Fig. 4. Fig. 9 is an end view of the same. Fig. 10 is a top plan view of the drawn and perforated blank shown in Fig. 6 after it has been opened out by a proper tool into a circular form. Fig. 11 is an enlarged view of said ring as seen on line *xx* of Fig. 10. Fig. 12 shows in diametrical section the blank illustrated in Fig. 11 after the same has been formed with an annular groove on each of its edges and the outer surface has been convexed. Fig. 13 is a diametrical section of the grooved and convexed ring shown in Fig. 12 after the sides of the grooves have been swaged into contact. Fig. 14 is an enlarged sectional view illustrating the closure of the groove. Fig. 15 is a diametrical sectional view of a flat band-ring formed by die action from the convex ring illustrated in Figs. 13 and 14. Fig. 16 shows in diametrical section

the ring-blank with its outer and inner gold plates longer than the interior tube of base metal and extending parallel with each other. Fig. 17 is the same as Fig. 16, except that it shows the edges of the outer and inner gold plates as turned inwardly.

In the drawings, Figs. 5 and 11 to 17, inclusive, are much enlarged in order to show more clearly the construction of my improved ring.

My invention is a jeweler's finding for the manufacture of a filled gold ring; and it consists of the combination of a tube of base metal having an annular V-shaped groove in each of its ends, a tube of precious metal on the outside of the base-metal tube and united thereto, and a tube of precious metal on the inside of the base-metal tube and united thereto, both of said tubes of precious metal being longer than said base-metal tube and projecting beyond its ends.

In the drawings, A is a steel bar on the edges of which on the top are two guide-plates B B, held in place by screws, as shown. C is a gage-plate having a slot at one end and a half-round seat at the other end. The gage-plate C is mounted upon the top of the bar A and is movable thereon, so that the end which has the half-round seat can be brought to any line of the index D, (on the top of said bar,) and when the gage-plate C has been so adjusted in position it is held in place by means of the thumb-screw E, which passes through said slot of the gage-plate C into the bar A, all as shown in Fig. 1.

The stock from which my improved ring is made is in the form of a bar F, having a central longitudinal layer of composition or base metal, with an outer layer or plate of gold on each of the opposite sides of said central layer and united thereto, as usual, by solder, one of said gold plates being thicker than the other.

The stock has a half-round forward end, as seen in top plan in Fig. 1, and is inserted between the guide-plates B B and pushed along upon the bar A until said half-round forward end is seated in the concavity of the gage-plate C. To determine the precise length of the blank or section to be cut from said strip

of stock, the inner edge of the gage-plate C is moved to the proper line on the index D and is held in such position by the thumb-screw E. A plunger (not shown) descends 5 with power vertically upon said strip of stock and cuts off a ring-blank G, forming the inner end of the blank G in a half-round shape and at the same time forming the forward end of the strip of stock in a half-round shape, 10 as illustrated in Fig. 1, the openings *a a* in said figure indicating where the said plunger has operated and removed portions of the stock. The ring-blank G so formed and cut off is shown in top plan in Fig. 2 and in side 15 elevation in Fig. 3, in the latter of which the blank is seen to be made up of a central strip or layer *b* of base metal or composition, the upper layer *c* of gold plate and the lower layer *d* of gold plate thinner, however, than the plate *c*. This blank G is next operated 20 upon as illustrated in Fig. 4. A draw-plate H has an aperture *e* through it, with an upwardly-flaring mouth. This aperture, as seen from above, has a narrow oblong shape, with rounded ends. The ring-blank G is laid centrally upon the draw-plate H, with the thin gold plate *d* uppermost, the major axis of said oblong blank coinciding with the major axis of said aperture and the minor axis of said blank 30 coinciding with the minor axis of said aperture. A plunger J, moved by power, descends upon the blank G and crowds it down into the aperture *e* of the draw-plate H until the blank G is sufficiently cupped and drawn thereby and until its bent bottom portion is 35 seated upon the end of the plunger I. The plunger I has its lower end I' concentrically enlarged, and the lower extremity of said end I' is firmly held against downward movement or displacement by any suitable means. The 40 plunger I and its end I' are centrally, longitudinally, and continuously perforated, as seen at *f*, Fig. 4, the shape and relative size of said perforations being substantially as shown in Fig. 8. The plunger I is of a shape 45 and size to fit loosely in the aperture *e* of the draw-plate H. Then continuing descent and pressure of the plunger J perforates the bottom of the cupped blank G, removing a piece, 50 (shown at K in Figs. 8 and 9,) which removed piece K so perforated or punched out is forced down into the opening *f* of the plunger I I' and is waste, gradually moved along by the succeeding operations, and passing through 55 said opening *f* to the floor or into a proper receptacle. The plunger II' is then moved upward, and its upper end forces the drawn blank out through the flaring mouth of the aperture *e* of the draw-plate H. 60 The vertical dotted lines in Fig. 5 indicate the portion of the cupped blank which is removed, constituting the piece K of Figs. 8 and 9. The horizontal dotted line in said figure indicates where said cupped and perforated blank is cut transversely by a saw or other proper tool or instrument. Said Fig. 5 is 65 made on an enlarged scale in order more

plainly to show the cupping and drawing effect upon the blank caused by the operation 70 illustrated in Fig. 4 and how the bottom of the cup is disposed of. The punched or perforated blank so produced is shown at G' in Figs. 6 and 7, where it is seen that said blank 75 is oblong in shape, with rounded ends and with a narrow oblong opening *g'*, said opening being caused by the removal of the piece K from the blank G, as already explained. The next operation is to open said oblong 80 aperture by a mandrel or other suitable means into the circular ring form G'' with the central circular aperture *g''*, as seen in Fig. 10.

In Fig. 11 I show on an enlarged scale the ring after it has been shaped into a true circle, said Fig. 11 being a sectional view on 85 line *x x* of Fig. 10. Here is seen the base-metal central portion *b*, the outer thick layer or covering of gold-plate *c*, and the inner 90 thin layer or covering of gold-plate *d*.

The next operation is to form from the ring G'' the ring G''', (shown in Fig. 12,) and which 95 constitutes my present invention. It is here seen that an annular V-shaped groove or channel has been formed (by milling or otherwise) in both the ends of the base-metal portion *b*, 100 as shown at *h*, and that the edges of the gold plates *c* and *d* have been beveled. The outer surface of the gold-plate may be convexed, as 95 at *c'*, by turning or in any suitable manner.

In Fig. 16 I show how the base-metal portion *b* may be cut down, so as to leave the 105 gold plates *c* and *d* free from all base metal and extending parallel to each other on both edges of the ring. In Fig. 17 I show how 110 these parallel projecting flanges of the gold plates *c* and *d* may be bent inwardly.

The article hereinbefore described and 115 which constitutes my present invention is a jeweler's finding, useful for the manufacture of filled gold-plated rings and for like purposes.

The manner in which these grooved-edged 120 rings may be made into filled gold-plated rings is shown in Figs. 13, 14, and 15. In Figs. 13 and 14 is illustrated the result of an operation which is preferably done by rolling, 125 (but which may be done by swaging, burnishing, or other suitable methods,) whereby the sides of the V-shaped annular grooves *h* are brought into contact, so that said sides of the grooves meet in a line *h'*, the filling of base 130 metal is convexed, as seen at *b'*, and the gold-plate *c'* is transversely stretched and still further convexed, as seen at *c''*. In Fig. 15 is illustrated the result of an operation similarly performed, whereby the ring G<sup>iv</sup> (shown 125 in Figs. 13 and 14) is formed into a gold-plated filled band-ring, (shown in Fig. 15 as G<sup>v</sup>,) where it is seen that the gold-plate *c''* of the ring G<sup>iv</sup> has been shaped with square corners 130 and the filling of base metal has been changed to a corresponding shape *b''*, the closure of the sides of the grooves *h* together being indicated by the lines *h''*.

The inward bending of the flanges of the

gold plates (illustrated in Fig. 17) is to enable the formation of an inwardly-rolled seam upon each edge of the finished gold-plated ring when the annular channels or grooves are closed and the gold plates *c* and *d* have been brought into contact and rolled together.

It is evident that bracelets, lockets, watch-cases, spoons, and other articles of gold-plated or silver-plated ware may be formed in like manner from intermediate blank forms consisting (as in the case of gold-plated finger-rings hereinbefore described) of an interior body portion of base metal cut in the shape of the article and provided with a channel or groove upon each of its edges, a plate of precious metal united thereto on one side of said base-metal portion, and a plate of precious metal united to the opposite side of said base-metal portion, said plates extending somewhat beyond the edges of the base-metal portion. The method of giving a continuous plating of precious metal on the edges of such articles, which is hereinbefore described as applied to the manufacture of gold-plated finger-rings, would be within the scope of my present invention.

The apparatus shown in Fig. 1 and the method herein described and illustrated in Fig. 4 are not, however, essential to my invention, but are specified simply as the best means known to me to accomplish the result in forming finger-rings; but it is evident that equally good results may be obtained by using the stock in the form of a tube, or if other articles than finger-rings are to be made containing my invention the blanks may be formed by dies or by other well-known means. The essential feature of my invention is the channeling or grooving of the base-metal portion of the article on the outer edges thereof and the covering of the upper and under surfaces of the base-metal portion with gold or silver plates projecting beyond the edges of the base metal for the purpose of developing said projecting edges of precious metal into the side surfaces of a plated article of manufacture.

As indicated by the dotted line in Fig. 16, the base-metal body portion may be made in two pieces, each having beveled edges, which

two pieces can be united by solder. By this means the annular channel on the ends of the base-metal portion need not be cut in a lathe or otherwise; but the beveled edges of each half of said central base-metal portion may be formed by dies or otherwise before soldering.

I claim as a novel and useful invention and desire to secure by Letters Patent—

1. The improved jeweler's finding for ring manufacture herein described, consisting of a tube of base metal having an annular groove or channel in each of its ends, an outer tube of precious metal united to said base-metal tube on the outer surface of the base-metal tube and having beveled edges and an inner tube of precious metal united to the base-metal tube on the inner surface of the base-metal tube and having beveled edges, substantially as set forth.

2. The improved jeweler's finding for ring manufacture herein described, consisting of a tube of base metal having an annular groove or channel in each of its ends, an outer tube of precious metal united to said base-metal tube on the outer surface of the base-metal tube, an inner tube of precious metal united to said base-metal tube on the inner surface of the base-metal tube each of said tubes of precious metal exceeding the base-metal tube in length, substantially as specified.

3. The improved jeweler's finding for ring manufacture herein described, consisting of a tube of base metal having an annular groove or channel in each of its ends, an outer tube of precious metal united to the base-metal tube on the outer surface of the base-metal tube and having a convexed outer surface and beveled ends and an inner tube of precious metal united to the base-metal tube on the inner surface of the base-metal tube and having beveled ends, substantially as specified.

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

FRANK R. STAFFORD.

Witnesses:

JOSEPH R. BULLOCK, Jr.,  
WARREN R. PERCE.