

No. 638,867.

Patented Dec. 12, 1899.

G. H. EVANS.

MACHINE FOR FORMING ANNULAR GROOVES OR BEADS ON SMALL METALLIC ARTICLES.

(Application filed Apr. 26, 1899.)

(No Model.)

2 Sheets—Sheet 1.

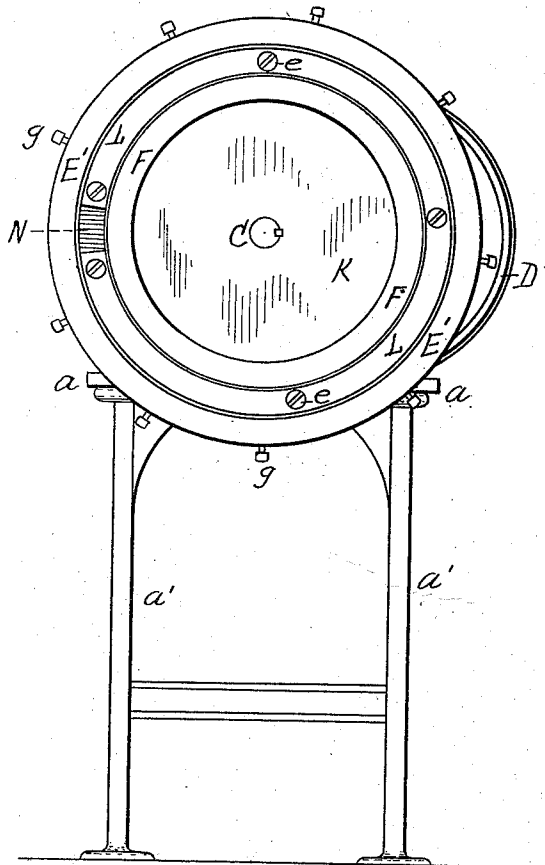


FIG. 1.

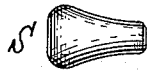


FIG. 2.

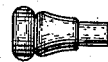


FIG. 3.

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2 Sheets—Sheet 2.

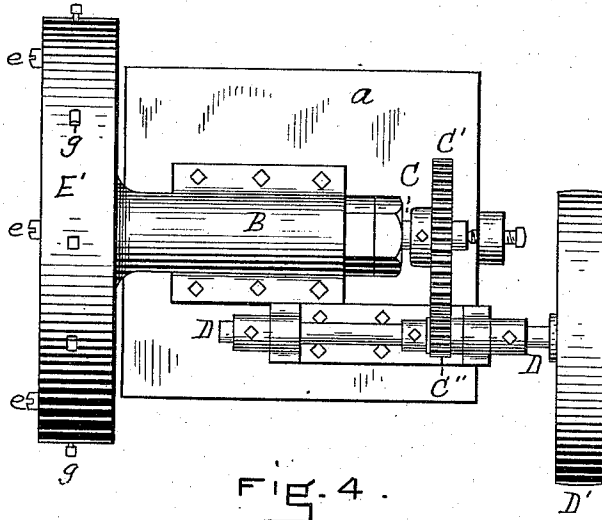


FIG. 4.

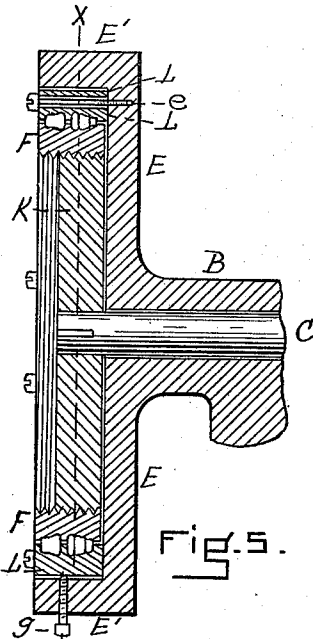


FIG. 5.

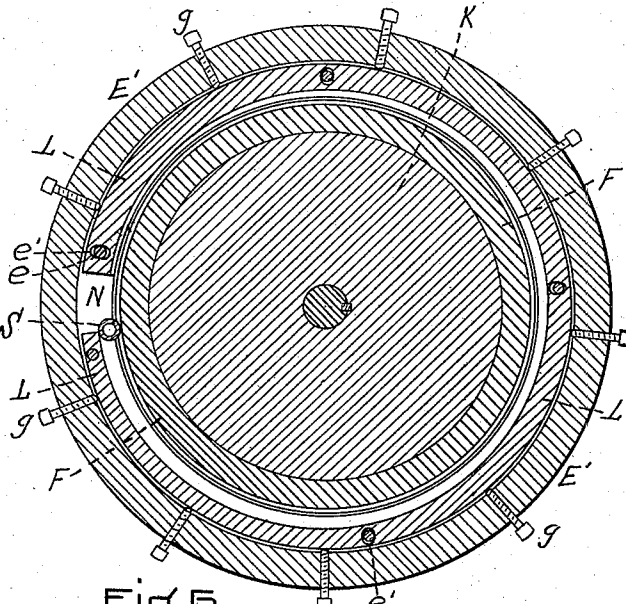


FIG. 6.

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MACHINE FOR FORMING ANNULAR GROOVES OR BEADS ON SMALL METALLIC ARTICLES.

SPECIFICATION forming part of Letters Patent No. 638,867, dated December 12, 1899.

Application filed April 26, 1899. Serial No. 714,542. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. EVANS, a citizen of the United States, residing in Providence, in the county of Providence and State of Rhode Island, have invented a new and Improved Machine for Forming Annular Grooves or Beads on Small Metallic Articles, of which the following is a specification.

This is an improved machine for forming annular grooves or beads of such shape as is desired on the peripheries of small metallic articles, more particularly the class of goods termed in the trade "jewelers' findings," such as the heads or shanks of swivels for ornamental chains, collar and cuff buttons, &c. In my machine or apparatus the blank or piece of metal to be operated upon is rolled between the outer surface of a die which is formed on a true circle and secured to the periphery of a revolving disk and the inner surface of a spiral die secured to the inner surface of a stationary holder or frame; and the invention or improvement consists in the construction and arrangement of parts fully described below, and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my apparatus or machine. Fig. 2 is an enlarged side elevation of a sample blank to be grooved by the machine. Fig. 3 is a similar view of the completed article formed from said blank by a pair of dies in the machine. Fig. 4 is a plan view of the machine. Fig. 5 is a vertical section of the head. Fig. 6 is a section taken on line X, Fig. 5.

Similar letters of reference indicate corresponding parts.

a represents a suitable table, preferably of metal, supported by legs *a'*. This table has rigidly secured to it a metallic frame B, in which the horizontal shaft C has its bearings, said shaft having fast on it the gear-wheel C', engaged by the pinion C'' on the driving-shaft D, also supported by the table and provided with the usual driving-pulley D'.

Integral with the frame B is a circular head E, provided with the annular flange E'. Splined or otherwise suitably secured to the shaft C is the disk K, the periphery of which is on a true circle, said disk being much smaller in diameter than the flange E' and set within said flange, as shown in Fig. 5.

Screwed or otherwise suitably secured upon the periphery of the disk K is a ring F, of substantially even thickness, the periphery of said ring being formed with annular grooves and projections of the pattern which is desired to be transferred to a blank, such as is indicated by S in Figs. 2 and 6. Between this die-ring F and the flange E' is a die L. This is not, strictly speaking, a ring, inasmuch as it has ends, between which a feeding-space N is provided. This die L is secured to the head E by means of suitable bolts *e*, which extend horizontally through radially-enlarged slots *e'* in the die, as indicated in Figs. 1, 5, and 6. The outer surface of the die L is plain and on a circle, while the inner surface is formed with annular grooves and projections corresponding in depth and shape to the grooves or projections on the periphery of the inner ring F and coincident therewith. This die L decreases gradually and regularly in thickness, as shown in Fig. 6, from one end to the other, so that its inner surface is spiral instead of circular. The position of the die L with relation to the inner die is regulated by suitable bolts *g*.

In practice a blank such as is shown in Figs. 2 and 6 is inserted in the feed-opening N and set, in the position indicated in Fig. 6, between the spiral die L at its thinnest end and the dies on the circular ring F. By imparting motion to the pulley D' the disk-wheel, with its die-ring F, is rotated, with the effect of rolling the blank S between the circular and outer spiral dies within the gradually-decreasing space, delivered at the opposite end of the spiral die L through the opening N in the condition indicated in Fig. 3.

Any desired variety of grooves and projections may be applied to the dies, and two or more sets of them may be formed on the same dies, if desired. The width of the space between the spiral die and the inner die is regulated by the screws *g*.

As it is not necessary that the front edge or face of the die L should be spiral so long as there is a little space left for adjustment, such front edge is shown in Figs. 1 and 5 as being of even thickness or width, and the rear edge, as indicated in Fig. 5, may be similarly formed. In fact this construction is advisable, inasmuch as the blank is prevented

thereby from any possibility of dropping out of position.

It is apparent that both of the dies F and L can be removed and other dies applied to the head in place thereof, so that the same machine can be utilized in forming or rolling jewelers' findings of different styles and patterns.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

The herein-described improved machine for forming annular grooves or beads on small metallic articles, comprising the stationary head E formed with the annular flange or ring E'; the driving-shaft extending centrally through said head, and means for actuating the same; the disk K fast on said shaft and within the head; the die-ring F removably

secured to the periphery of the disk and provided on its periphery with annular parallel ridges and grooves; the die L removably secured to the head between said die-ring and flange and adjustable radially with relation thereto, said die L gradually decreasing in thickness from one end to the other whereby a spiral space is produced between said die L and die-ring F, said die L being of length to provide the feed-opening N between its ends; and mechanism for adjusting the die L with relation to the die-ring F and thereby regulating the width of the space between them, substantially as described.

GEORGE H. EVANS.

Witnesses:

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