

K. SCHWAHN.
 APPARATUS FOR ENGRAVING THE INTERIOR SURFACES OF HOLLOW ARTICLES.
 APPLICATION FILED APR. 13, 1908.

990,912.

Patented May 2, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

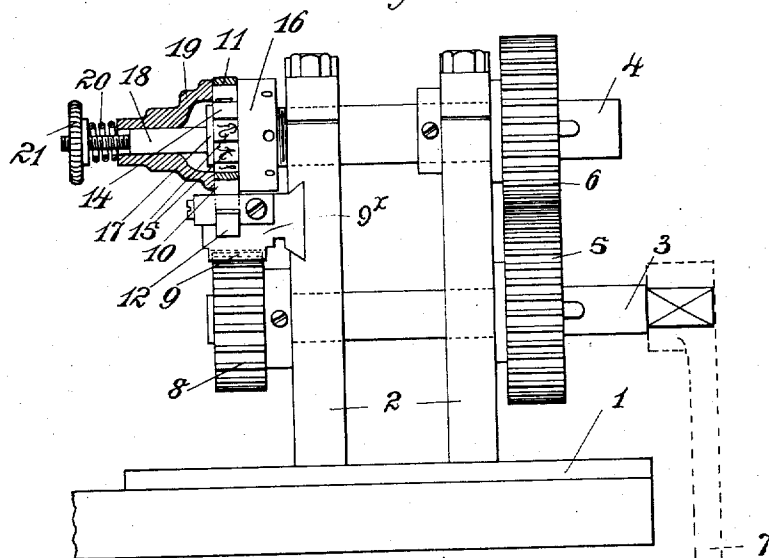
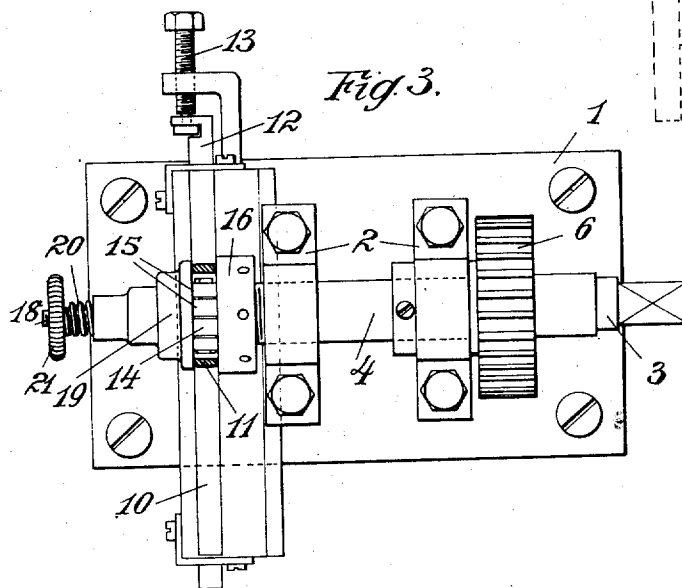


Fig. 3.



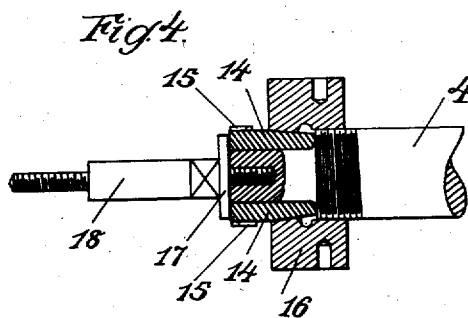
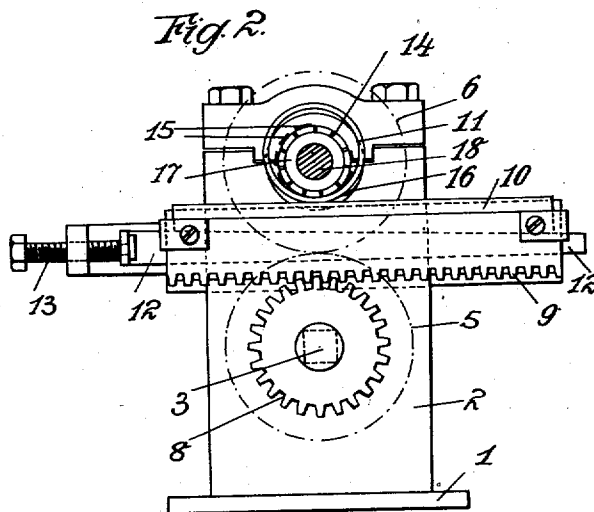
Witnesses:
 E. Schurmann
 C. Raut.

Inventor:
 Konrad Schwahn
 by Lewis, Goldsborough & Mill
 Attys.

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 E. Schumann.
 G. G. G.

Inventor:
 Konrad Schwahn.
 by F. J. Goldthorpe & Co.
 Attys.

UNITED STATES PATENT OFFICE.

KONRAD SCHWAHN, OF HANAU, GERMANY.

APPARATUS FOR ENGRAVING THE INTERIOR SURFACES OF HOLLOW ARTICLES.

990,912.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed April 13, 1908. Serial No. 426,764.

To all whom it may concern:

Be it known that I, KONRAD SCHWAHN, jewelry manufacturer, a subject of the German Emperor, and resident of Hanau, in the Kingdom of Prussia, Germany, with the post-office address No. 11 Wilhelmstrasse, have invented new and useful Improvements in Apparatus for Engraving the Interior Surfaces of Hollow Articles, of which the following is a specification.

This invention relates to an apparatus for engraving the interior of hollow articles, particularly rings, as a substitute for the use of the graving tool which requires an expert engraver.

According to the present invention the interior surface of such a hollow article is engraved by pushing the article over a roller carrying on its outer surface a matrix of the design required and rolling the article upon this roller.

The machine consists essentially of a roller having a design upon it, such as a roller carrying a matrix composed of types over which the article, such as a ring, is pushed so that its inner surface can be rolled on the roller. As the support for the article there may be used a movable device against which the outer surface of the article bears; the types are mounted separately in the matrix roller drawn to an enlarged scale. sleeve screwed over them.

In the accompanying drawings, Figure 1 is a side elevation partly in section of a machine embodying the invention, Fig. 2 is an end elevation thereof partly in section, and Fig. 3 a plan; Fig. 4 is a sectional view of the matrix roller drawn to an enlarged scale.

Upon a base plate 1 adapted to be fixed to a table are two uprights 2 which carry bearings for the two shafts 3 and 4. These are in gear with each other through gearing 5-6 and are driven by a cranked handle 7 mounted on the shaft 3, the latter having at its opposite end a toothed wheel 8 which engages with a rack 9 carried by a slide 9*. This slide carries a bar 10 which conforms to the outer periphery of the hollow article 11 to be engraved. In the present instance this article is a finger ring. The lower surface of the bar 10 is chamfered and rests upon a wedge 12 which can be pushed farther beneath the bar or withdrawn by turning the screw 13. It follows that this screw serves to raise the bar more or less and thus to press the ring against the matrix roller

14. This roller is made up of separate type carrying sections which are held together by a correspondingly coned nut 16 which screws on the end of the shaft 4. The types 15, which may be letters or numbers, are arranged on the surface of the cylinder; any spacing between the letters is effected in the usual way by space types. As a further support for the types there is a flange 17 on a pin 18 which is screwed into the end of the shaft and over which is thrust a sleeve 19 subject to the action of a spring 20 the compression of which may be adjusted by a nut 21; this sleeve 19 bears against the article 11 and keeps it in place. The type holding nut 16 serves as a fixed abutment on the shaft 4 against which the ring is yieldingly pressed by means of the spring-actuated movable abutment 19, which is urged by its spring in the direction of the aforesaid fixed abutment.

The machine operates as follows: The space and character types 14, 15 are mounted on the reduced end of the shaft 4 and are fixed in position by screwing forward the nut 16, the ring is then pushed over the matrix roller thus built up so that the ring rests upon the bar 10; by screwing up the screw 13 the bar 10 is made to exert the correct degree of pressure upon the ring forcing it against the matrix roller, the sleeve 19 is next mounted on the pin 18, the spring 20 is put in place and the nut 21 is screwed, thus keeping the ring in position. The crank 7 is now turned, whereupon the slide is shifted in one direction and the matrix roller is turned, whereby the ring is rolled upon the matrix roller and the bar 10, and the types are thus pressed into the interior surface of the ring.

Now what I claim and desire to secure by Letters Patent is the following:

1. A machine for engraving the interior surfaces of finger rings, comprising a rotary matrix roller over which the ring is freely passed, an abutment to lie against the outer surface of the ring and press a portion of the inner ring surface against a portion of said matrix roller, and a plurality of individually detachable and interchangeable type on said roller, whereby the required engraving or impression on the inner surface of any given ring may be effected, substantially as and for the purpose described.

2. In a machine for engraving the interior

surfaces of hollow articles, the combination of a rotary matrix-roller having types on its periphery, with a sliding bar beneath the matrix-roller, adjusted by a wedge with regard to the matrix-roller, substantially as and for the purpose described.

3. In a machine for engraving the interior surfaces of hollow articles, the combination of a rotary matrix-roller having types on its periphery and moved by a cranked handle, with a sliding bar beneath the matrix-roller, moved by rack and toothed wheel from the said handle and adjusted by a wedge with regard to the matrix-roller, substantially as and for the purpose described.

4. In a machine for engraving the interior surfaces of hollow articles, the combination of a rotary matrix-roller having types on its periphery held by a sleeve screwed over the types, and moved by a cranked handle, with a sliding bar beneath the matrix-roller, moved by rack and toothed wheel from the said handle and adjusted by a wedge with regard to the matrix-roller, substantially as and for the purpose described.

5. In a machine such as described, the combination with a rotary shaft, of a plu-

rality of type-carrying sections associated therewith, and a coned nut screwed on the shaft, and embracing said sections, to hold the same detachably on the shaft.

6. In a machine such as described, the combination with a rotary stamping roller, of a fixed abutment at one side of the same, and a movable abutment yieldingly pressed toward the fixed abutment, to hold the ring or other article against the latter.

7. In a machine such as described, the combination of a rotary stamping roller, a fixed annular abutment rotating therewith at one side of the same, and a spring-pressed sliding annular abutment at the opposite side of the stamping roller and urged by its spring in the direction of said fixed abutment.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this twenty eight day of March 1908.

KONRAD SCHWAHN.

Witnesses:

JEAN GRUND,
ROBERT BÜHL.

Correction in Letters Patent No. 990,912.

It is hereby certified that in Letters Patent No. 990,912, granted May 2, 1911, upon the application of Konrad Schwahn, of Hanau, Germany, for an improvement in "Apparatus for Engraving the Interior Surfaces of Hollow Articles," an error appears in the printed specification requiring correction as follows: Page 1, line 31, the words "drawn to an enlarged scale" should be stricken out and the words *and are held in place by a* inserted instead; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 23d day of May, A. D., 1911.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.

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