March 17, 1931. T. MOUNTFORD 1,796,387

FINGER RING, BRACELET, AND THE LIKE

Filed Nov. 3, 1925 2 Sheets-Sheet 1

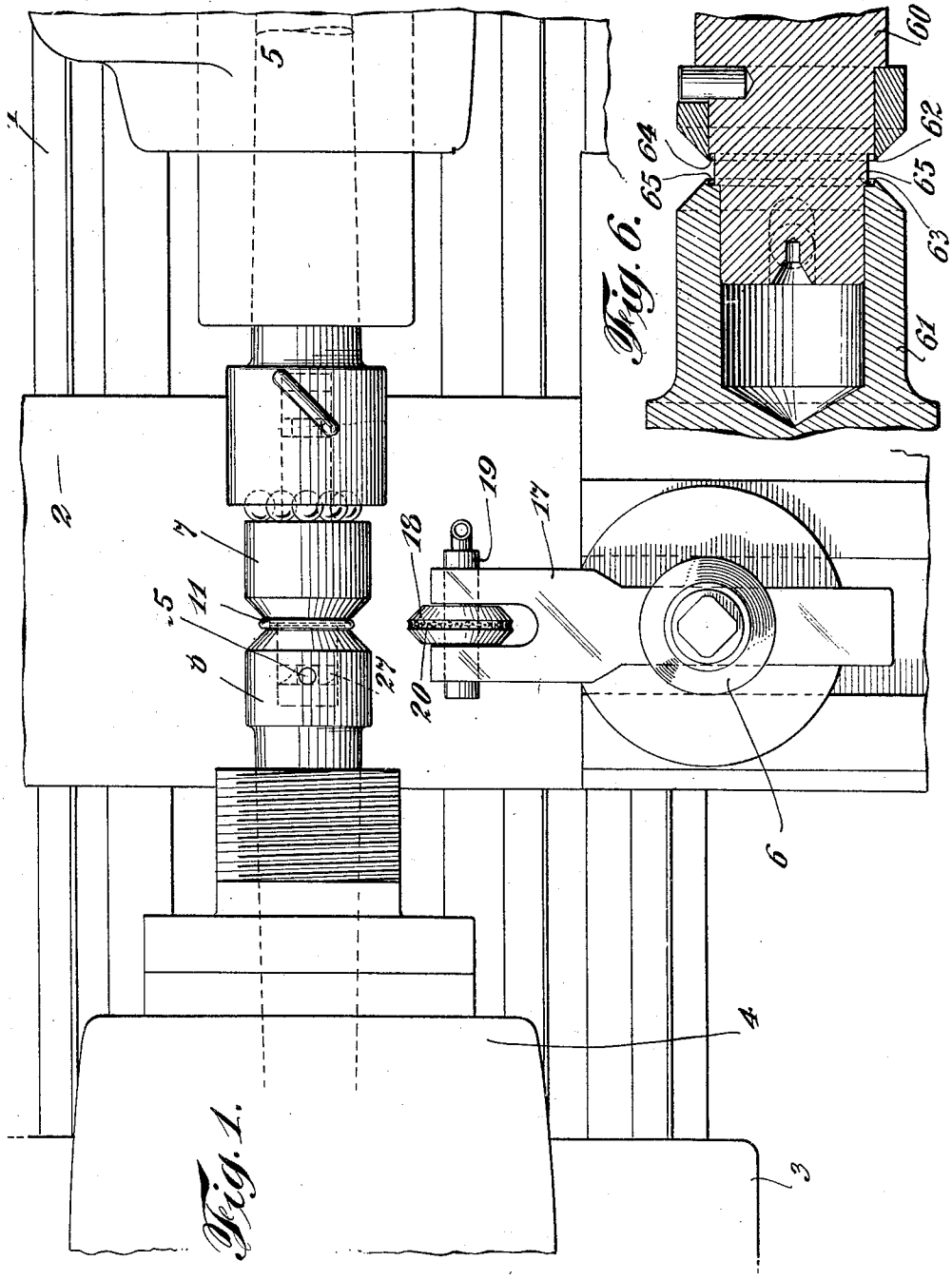


Fig. 1.

Fig. 6.

INVENTOR
Thomas Mountford
BY
J. O. Edmonds
ATTORNEY

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Filed Nov. 3, 1925 2 Sheets-Sheet 2

Fig. 2.

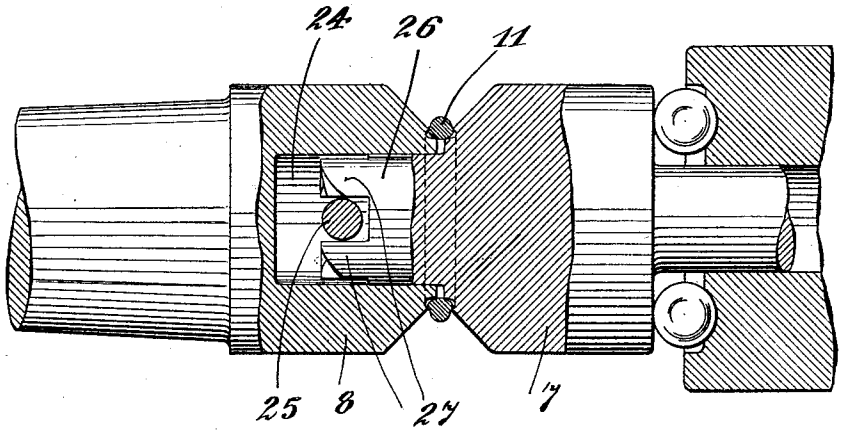


Fig. 3.

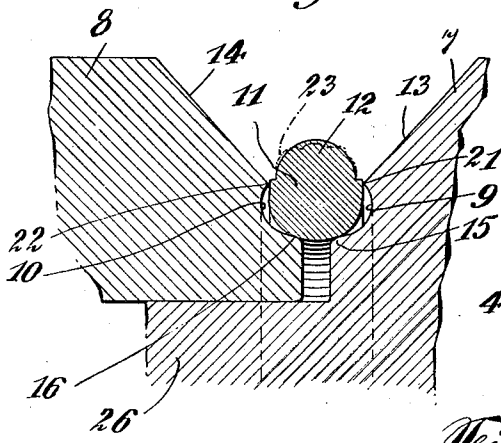


Fig. 4.

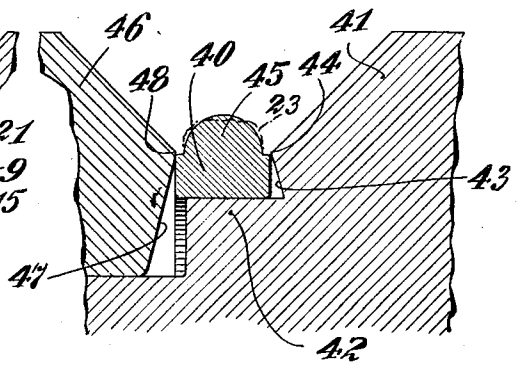
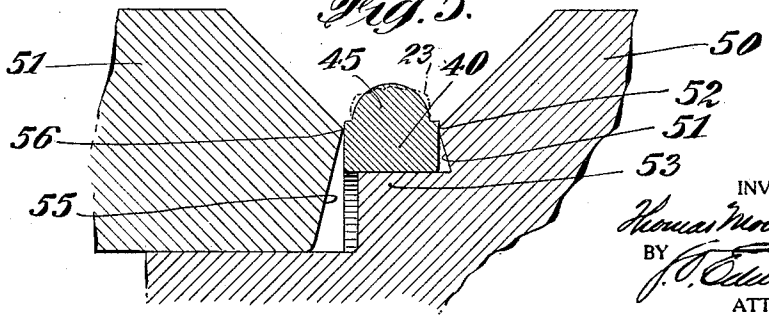


Fig. 5.



INVENTOR
Thomas Mountford
BY
J. O. Edmonds
ATTORNEY

Patented Mar. 17, 1931 1,796,387

UNITED STATES PATENT OFFICE

THOMAS MOUNTFORD, OF NEWARK, NEW JERSEY, ASSIGNOR TO BLANCARD & CO., INC., OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY

FINGER RING, BRACELET, AND THE LIKE

Application filed November 3, 1925. Serial No. 66,629.

This invention relates to finger rings, bracelets and the like, and to a method of making the same.

Heretofore it has been customary to place the design on the outside of rings, such as wedding rings and bracelets, by hand carving or etching the design thereon after the finger ring or bracelet has been formed to shape. So far as applicant is aware, machine tools have never been used successfully heretofore to establish the design on such articles after they have been formed into ring-shape. Hand engraving and etching are very expensive as compared with machine work, and the principal object of my invention is to provide a method of placing designs on the outside of finger rings, bracelets and the like, after they have been formed into ring-shape, by means of special mechanical operation, permitting the use of machine tools for this purpose, whereby the necessity of hand engraving or etching the design on such preshaped articles is eliminated, and the expense of producing the finished articles is reduced to a minimum. A further object is to provide a method of and apparatus for placing a design on finger rings, bracelets and the like, which results in a fine, clean-cut and brilliant finish. Another object of this invention is to provide a ring, bracelet or the like which has the design rolled therein by means of a die, after the article has been formed into ring-shape, and to provide a finger ring, bracelet, or the like, which is inexpensive to manufacture, and at the same time bears on its surface a design that is exceptionally clean-cut and brilliant, and more even and accurate than can be obtained by handwork. Other objects of this invention will be in part obvious and in part pointed out hereinafter.

In accordance with my invention, I clamp the finger ring or bracelet on which it is desired to place a design between two jaws which clamp against the ring in such a way that it cannot, under any circumstances, expand to increase its diameter, the outside surface of the ring or bracelet, however, being exposed so that a die may be brought into contact therewith. I cut the design to be imparted to the ring in the periphery of a circular die. I then rotate the ring, preferably by rotating the jaws or mandrel in which it is clamped, and then bring the die edgewise against the outer surface of the ring with sufficient pressure to cause the die to impress its design on the outer surface of the rotating ring. The design on the die should be symmetrical and endless so that the design on the die will register at exactly the same places on the finger ring or bracelet on each rotation thereof, the die, of course rotating with the ring during the operation. When one ring has been so impressed with the design, the die is withdrawn, the jaws are opened, the finished ring removed, and another ring replaced, and the operation repeated. It will be apparent that by this method the desired design may be placed on finger rings, bracelets and the like very quickly and inexpensively. By using a die to impress the design on the article instead of hand-chasing the design thereon, the designs may be made to appear more clean-cut and symmetrical.

In order that a clearer understanding of my invention may be had, attention is hereby directed to the accompanying drawings forming a part of this application and illustrating certain possible embodiments of my invention. Referring to the drawings, Fig. 1 is the top view of the ring holding means, the die and the die holding means associated with an ordinary lathe, only a portion of the lathe being shown and this in light lines; Fig. 2 is an enlarged sectional view of the ring holding means with a ring in place thereon; Fig. 3 is an enlarged sectional view of a portion of the ring holding means adapted to hold a ring rounded on the inside and edge, and showing such ring in section; Fig. 4 is a sectional view of a fragment of ring holding means adapted to hold a ring which is straight on the inside, a ring of this type being shown in section; Fig. 5 is a view similar to Fig. 4 but shows a modified manner of engaging the ring in the mandrel; and Fig. 6 is a similar view of another modification. Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring to the drawings, there is shown in light lines a lathe of conventional construction, including the lathe bed 1, carriage 2, head stock 3, which has a spindle bearing 4, loose head stock 5 and cross slide or tool box 6. In the loose head stock 5 is mounted for rotation a jaw or mandrel part 7. In the spindle bearing 4 is mounted a complementary jaw or mandrel part 8. Part 8 is adapted to be revolved by the lathe power means (not shown). The opposing ends of jaws 7 and 8 are formed with complementary and aligning circular recesses 9 and 10 which are undercut and are carefully formed to fit against the sides of a ring, such as a finger ring or bracelet, or the like, 11, of a predetermined size, in such a way that when the jaws 7 and 8 are tightly clamped against opposite sides of the article the outer portion 12 of the article will be exposed. Preferably, the parts 7 and 8 are formed to taper outwardly away from the ring, as at 13 and 14. Also jaws 7 and 8 are formed to have shoulders 15 and 16 seating inside of the ring.

In the tool box 6 is mounted a die holder 17 which carries a circular die 18 for rotation on a pin 19. The design to be imparted to the finger ring, bracelet or other article held in the jaws 7 and 8 is carefully cut into the periphery of the die, as at 20. The tool box and die 18 are movable toward and from the article held in the jaws 7 and 8, so that after an article has been clamped in the jaws 7 and 8 and is rotating therewith, the design carried on the die may be imparted to the outside of the article by bringing the die against the periphery of the article with the necessary degree of pressure. When the design has been impressed the die is retracted to permit the ring to be removed and a new ring put into place.

It is essential that the article in the jaws 7 and 8 be so engaged and clamped that it cannot stretch or expand to increase its diameter while it is being impressed by the die. If such distortion occurred, the design on the die would not register at exactly the same places on the article during subsequent revolutions thereof, with the result that the design on the article would be chewed up on subsequent revolutions and no clean-cut or well-defined design would appear thereon. In order to insure against the diameter of the article increasing during the designing operation, practically the entire clamping force of the jaws 7 and 8 is concentrated on the sides of the article on lines which are well above the inside periphery thereof. This is the reason for forming the mandrel parts 7 and 8 with grooves which are undercut, as at 9 and 10. One side of the ring will be engaged by an annular edge or lip 21 which contacts the ring just below the ornamented portion 12. The other jaw 8 has a similar annular edge or lip 22 which engages the other side of the ring at a similar location. The jaws 7 and 8 are clamped together very tightly before an impression is made on the article. When impressed, the outside 12 of the article receives the impression and design as shown by dotted lines 23.

The jaw 8 is preferably provided with a central recess 24 across which extends a rigid pin 25. Jaw 7 is preferably provided with a forwardly projecting central portion 26 which at its front edge has clutch fingers 27 which engage the pin 25 when the jaws are brought together, so that rotation of jaw 8 will cause simultaneous rotation of jaw 7 in unison therewith.

The construction so far described is the construction which is used preferably for rings which are rounded on the inside and on the edges. In Fig. 4 there is illustrated a modification which may be used when the ring or bracelet 40 has straight inside faces and edges. For articles of this type the jaw 41, which is mounted on the loose head stock of the lathe, is formed with an annular shoulder or seat 42 on which the ring may be placed. This jaw also has an undercut annular recess 43 which ends in an annular edge 44 which is located so as to just overlap the article 40 at the base of the portion 45 which is to be ornamented. The complementary jaw or mandrel part 46 is also formed with an undercut recess 47 to provide an annular edge 48 which just overlaps the portion 40 at the opposite side of the ring. Jaw 46 may have a recess and pin similar to the recess 24 and pin 25 of head 8, and jaw 41 may have a coacting projection and clutch fingers simliar to the projection 26 and clutch fingers 27 of the jaw 7 heretofore described. In this modification, when the jaws 41 and 46 are brought tightly against opposite sides of the article 40, this article will be so clamped that it cannot, under any circumstances, stretch or expand to increase its diameter when the design is rolled thereon from the die 20.

Instead of having the annular edges 44 and 48 engage over the base 40 of the ring or bracelet, these points may be so located on the jaws that they engage directly against the sides of the finger ring or bracelet just at or below the base of the portion 45 which is to be ornamented. This modification is shown in Fig. 5, the jaw 50 on the loose head stock of the lathe having an undercut recess 51, the annular edge 52 of which engages against a side of the article to be ornamented, and an annular seat portion 53 on which the article rests. The jaw 54 which rotates with the lathe spindle has an undercut recess 55 and an annular edge 56 which engages the other side of the article 40 at or just below the portion 45 which receives the ornamentation.

In the modification shown in Fig. 6, each

of the ring holding and clamping members, or jaws, 60, 61, has an annular lip or edge 62, 63. These engage the opposite sides of the ring to clamp the ring against increasing or stretching in diameter during the ornamentation by means of rotary die 18. Beneath the edges 62, 63 each jaw is formed to have an undercut recess 64, 65, the top surface of which in this instance is square instead of tapered.

The operation is as follows:—An unornamented article, such as 11 or 40, is tightly clamped between the complementary work holding jaws and rotation is then started. The die 18 is then brought against the outside of the article to impress thereon the design of the die. The impressing of this design will follow in consequence of the rotation of the parts and the pressure of the die against the article. When the impression is completed die 18 is retracted and jaws are separated to permit the ornamented article to be removed and another unornamented article to be substituted. It will be evident that this cycle of operations may be repeated indefinitely or until the die wears out, and that by the apparatus and method above outlined designs may be placed on finger rings, bracelets and the like very cheaply and very quickly.

Preferably, a different set of jaws and a different die is provided for different sizes of rings. So long as the size of the ring or other article is the same, different designs may be applied by changing the die wheel 18.

It will be apparent that my invention may be employed with advantage to place designs on ring-like objects which are formed by bending a strip of metal to shape and then soldering the ends together, as well as on rings which are formed without a seam. The latter is the preferable article of jewelry because a seam is objectionable and detracts from the appearance of the ring.

As many changes could be made in the above construction and as many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What I claim is:—

1. The method of finishing a ring as to its ornamentation, which includes cutting a design in the periphery of a die wheel, mounting the die wheel so that it is freely rotatable, rolling an unfinished ring in contact with the rotatable die wheel to cause the die wheel to impress a finished continuous design on the periphery of the ring, and gripping said ring along a knife-like annular line on each side thereof to prevent the ring from increasing in diameter during the impression of the design thereon.

2. The method of ornamenting a shouldered seamless ring which consists in impressing a finished continuous design on the periphery of the ring by the repeated and continued revolving of an unfinished ring in contact with a rotatable die wheel, and gripping said ring below the shoulders thereof and along a knife-like annular line on each side of the ring to hold the same during the rolling process against movement and preventing any change in the diameter of said ring so that the markings made on said ring during a previous revolution will precisely coincide with the markings made thereon by a subsequent revolution.

3. The method of ornamenting a shouldered seamless ring which consists of gripping the ring below the shoulders thereof along a knife-like annular line on each side of the ring and rolling the unfinished ring in contact with a rotatable die wheel to cause the die wheel to impress a finished continuous design on the periphery of the ring close to the shoulder portions thereof.

This specification signed this 28th day of October, 1925.

THOMAS MOUNTFORD.