No. 746,944. PATENTED DEC. 15, 1903.

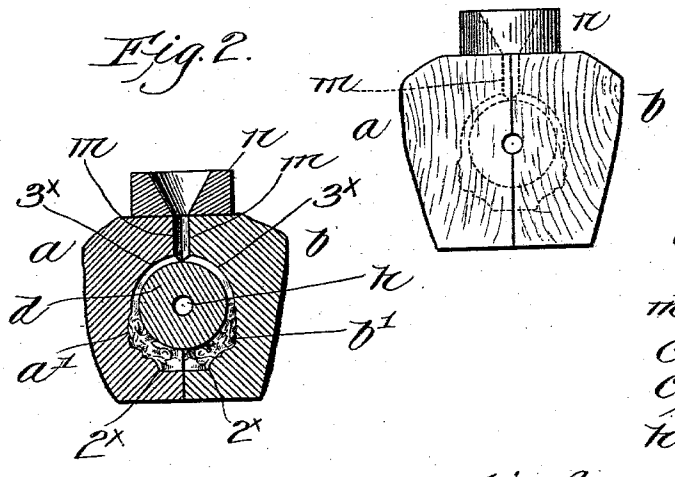
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MOLD FOR CASTING RINGS.

APPLICATION FILED MAR. 23, 1903.

NO MODEL.

Fig. 1



Witnesses.
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No. 746,944. Patented December 15, 1903.

UNITED STATES PATENT OFFICE.

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MOLD FOR CASTING RINGS.

SPECIFICATION forming part of Letters Patent No. 746,944, dated December 15, 1903.

Application filed March 23, 1903. Serial No. 149,020. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. FORD, a citizen of the United States, residing at Lowell, county of Middlesex, State of Massachusetts, have invented an Improvement in Molds for Casting Rings, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object the production of a novel mold in which to cast in a novel manner finger-rings.

The novel mold shown as embodying my invention for finger-ring casting comprises a plurality of pieces of mold material, each concaved at its face to embrace a core corresponding substantially with the finger size of the ring to be cast, each concavity containing a depression corresponding in shape with the exterior of the ring, of whatever shape, to be cast, each depression serving to define the exterior of the ring from edge to edge.

Figure 1, in side elevation, represents one of my improved molds and a detachable auxiliary runway assembled, the core of the mold being represented by dotted lines. Fig. 2 is a longitudinal section of the mold and runway shown in Fig. 1 with the core in elevation, the section being in the line x, Fig. 3. Fig. 3 is a cross-section of the mold and core with the core in elevation. Fig. 4 is a section of one of the mold parts in the line x', Fig. 5, looking toward the narrowest part of the impression. Fig. 5 shows the face of one of the mold parts with the core omitted to show a concavity and a depression. Fig. 6 shows the holder and pattern-ring employed in the formation of the concavities and depressions, Figs. 1 to 3. Fig. 7 shows part of the top of the ring to illustrate the position of the fin left at the meeting faces of the mold-sections. Fig. 8 shows detached the core illustrated in Fig. 3, and Figs. 9 and 10 show modified forms of core.

The novel mold herein disclosed for casting finger-rings comprises a plurality of pieces or sections a b of mold material, each having a like concavity c, in each of which are depressions a' b', corresponding in shape with the cross-section of the ring to be cast from one to its other edge. The concavities c correspond in shape substantially with the detached non-metallic destructible core d to be used in the mold to determine the finger-size of the ring to be cast.

For the production of the described mold I mount a pattern-ring e, Fig. 6, of any desired shape on a metallic ring-holder f and force a part of the exterior of said pattern-ring and the periphery of the ring-holder into the mold material, preferably cuttlefish. As shown in Fig. 5, substantially one-half of the pattern-ring e, from its widest part or top to its lower side, and of the holder is embedded in the section a and the other half of the ring and holder in the other section b. The ring forms the depressions a' b', and the holder forms the concavities c.

The holder is a little longer than the widest part of the pattern-ring, and consequently the depression for outlining the exterior of the ring to be cast is at its widest part a little narrower than the surface of the cuttlefish acted upon by the holder, so that the depressions are made within the area of cuttlefish that is concaved by the holder. This construction enables the depressions of whatever width, that depending upon the outline of the ring to be cast, to be crossed by the core located in the concavities, the core preventing gold entering the depressions from escaping between the core and the surrounding mold material.

The drawings show the ring depressions a' b' in the mold-pieces a b shaped to cast a ring to embrace substantially one-half of the finger from the top to the under side thereof, and the shape of the part $2^{\times}$ of the depression, due to the shape of the pattern-ring, is such as to provide for casting a ring having an enlarged or wider or heavier top or crown 2 to rest on the top of the finger.

I designate the large or wider part 2 of the ring as the "top," and the top and the shank 3 of the ring below it may be of any shape commonly used in rings—as, for instance, seal or signet rings, stone rings, figure-rings, &c.—and, as shown in Fig. 5, the portion $2^{\times}$ of the depressions in the mold-pieces are wider than the portions $3^{\times}$ of the depressions that shape the part of the shank 3 of the ring crossing the under side of the finger. This invention

is not limited, however, to the width or depth or particular configuration of the depressions a' and b', as they may vary with the style, width, and thickness of the top and under part of the ring to be cast.

The cavity in each mold-piece may embrace more or less of the core, according to the style of ring to be cast.

As shown in Fig. 1, where the mold is assembled, the periphery of the core is surrounded by the concavities c, and the ends of the core contact with the inner sides of the walls c' thereof. (See Fig. 3.) The periphery of the core crosses fully the depressions a' b' of whatever shape, defining the exterior outline of the ring to be cast from one to its other edge, and said core forms an inner wall for said depressions, so that the molten metal entering the depressions and surrounding the charcoal core is enabled to cool slowly, thus making the ring malleable.

To provide for the ready escape from the mold depressions of the air therein when the metal enters, and thereby avoid pin or blow holes in the castings, the core is provided with peripheral vent-slits g', that preferably intersect a hole h, made through the core from one to its other end.

The peripheral vent-slits g', Fig. 8, are made circumferentially of the core or at right angles to the longitudinal axis of the core, while the slits g' (see Fig. 10) are made longitudinally of the core. These vent-slits are made with an excessively fine saw that will enable the air to pass readily through the slits, but will exclude the injurious passage of gold therethrough from the mold.

Each part of the mold shown may have in its outer face between its ends a runway m for the entrance of the molten metal into the ring depressions a' b' of the assembled mold.

I find that the mold depressions will fill more accurately if the molten gold is permitted to get some force or impetus when entering the runway leading to the mold depressions. As a result of my experiments in this direction I have discovered that the employment of an auxiliary detachable runway n to lead the gold to the runway m of the mold-sections gives force and impetus to the gold, provided the material of the auxiliary runway is such as not to cool or to exert a retarding friction on the melted gold. This auxiliary runway for the best results should be of charcoal, as it will not injuriously cool the gold, nor will the charcoal exert friction on the gold, as would cuttlefish.

It is immaterial where the runway intersects with the depressions shaping the exterior of the ring, so this invention is not limited to the exact spot shown for the runway m, as the latter may be in either mold-piece at any desired point; but the position of the runway in Fig. 1 is considered preferable.

Inasmuch as the depressions in the mold-pieces shape the ring from edge to edge and the casting surrounds the one-piece core, it follows that the interior of the ring fitting the core is cast smooth and that the exterior of the ring shows a fin only where the mold-pieces abut one the other, as at p, Figs. 6 and 7, and consequently the interior and exterior of the ring is devoid of the usual fins extending thereabout centrally, as is customary in all rings cast in cuttlefish or other material wherein one half of the ring in the direction of its thickness is cast in one mold-section and the other half in another mold-section, the core part integral with each mold part abutting when the mold parts are put together.

As the only mold-marks at the exterior of the ring cast in the mold herein described cross the outside of the ring substantially parallel with the longitudinal axis thereof, it follows that a ring of this class may be filed up quickly and with less waste of stock than when cast by usual processes heretofore practiced.

A charcoal or carbon core is sufficiently soft to permit the gold to cool thereon and shrink, and when the ring is taken from the mold the core goes with it and may be broken or cut out with a knife, the core easily breaking up in order that it may be removed.

The mold material is cut from the inner end of the walls c', as at c^2, substantially opposite the end of the center hole h of the core, and the air entering the vent-slits escapes through said hole with the atmosphere.

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

1. A mold for casting finger-rings, comprising a detachable core, and mold-sections provided each with a concavity of a size to receive the exterior of the core, each of said concavities having a depression to define the shape of the exterior of the ring from one to its opposite edge.

2. A mold for casting finger-rings, comprising a detachable charcoal core, and pieces of mold material each provided at its face between its ends with a concavity to receive the core, said concavity being provided with a depression of less width than the length of the core, the depression in each piece of mold material receiving the molten metal and forming a part of the ring from one to its other edge.

3. A mold for casting finger-rings, comprising a core having its exterior provided with vent-slits, and sections of mold material each provided at its face with a concavity shaped to receive the core, each concavity having embedded in it a depression to define the exterior of a part of the finger-embracing part of the ring from edge to edge.

4. A mold for casting finger-rings, comprising a non-metallic core having vent-slits, and pieces of mold material each provided at its face with a concavity shaped to receive the core, each concavity having embedded in it a depression to define the exterior of a part

of the finger-embracing part of the ring from edge to edge.

5. A mold for casting finger-rings, comprising a charcoal core, and pieces of cuttlefish surrounding the periphery of said core, each of said pieces of cuttlefish having impressed into its face a concavity to receive the core, and said concavities being provided with narrower depressions to shape a portion of the ring from edge to edge, whereby each mold-piece serves to form a part of the ring to embrace a considerable portion of the finger, the fin indicating the meeting faces of the cuttlefish crossing the exterior of the ring from one to its opposite edge in lines substantially parallel with the longitudinal axis of the core and ring.

6. A mold for casting finger-rings comprising a detachable core, and pieces of cuttlefish each having in its face a concavity to receive the core, said cuttlefish presenting side walls to overlap the ends of the core, each concavity presenting a depression to define the shape of a part of the exterior of the ring from one to its other edge, the core crossing the depressions made in the cuttlefish and preventing the escape of gold from the depressions when the latter is cast in the assembled mold.

7. In a mold for casting finger-rings, a plurality of pieces of mold material having each a concavity to define the finger size of the ring, the curved faces of said concavities having depressions to shape the exterior of a part of the ring from edge to edge, and a non-metallic detachable core having a longitudinal hole and provided at its exterior with vent-slits.

8. A mold for casting finger-rings, comprising a non-metallic detachable core having a longitudinal hole, and a series of circumferential slits cut in said core, and a plurality of pieces of mold material having each a concavity to receive the core, the curved faces of said concavities having each a depression to conform in shape with the exterior of the ring to be cast from one to its other edge, and of a length to embrace a substantial part of the finger.

9. In a mold for casting finger-rings, a plurality of pieces of mold material, each having a concavity, one of said pieces having a depression to form the top of the ring, and also a part of the shank or body thereof embracing the finger beyond the point where the inner side of that part of the ring having said top contacts with the finger, and a detachable core fitting the concavities of said pieces of mold material.

10. In a mold for casting finger-rings, a plurality of pieces of mold material each having a concavity, one of said pieces having a depression shaped to form the top of the ring, and a part of the shank or body thereof embracing the finger below the top or the part thereof contacting with the top of the finger, and a detachable core fitting said concavities, the ends of said core serving by contact with the ends of said cavities to correctly register the ring depression of the separate mold parts one with the other and prevent one mold part from moving laterally over the other mold part.

11. A mold for casting gold, said mold comprising non-metallic material having an impression to shape one face of the article to be cast, and finely-slitted non-metallic material crossing the mold impression that quickly rises in temperature and retards the cooling of the gold in said impression, said ventilation affording an avenue for the ready escape of air from said impression but preventing the escape of gold therefrom, to the detriment of the casting.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. FORD.

Witnesses:
GEO. W. GREGORY,
EDITH M. STODDARD.