No. 844,072. PATENTED FEB. 12, 1907.

F. C. WIDMANN.

RING MOLD.

APPLICATION FILED MAY 14, 1906.

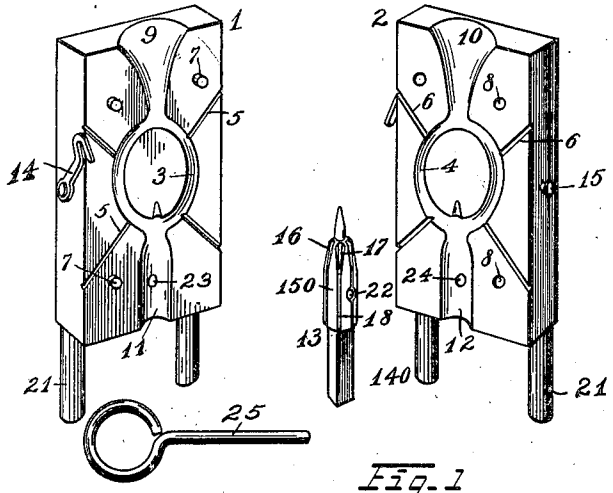


Fig. 1

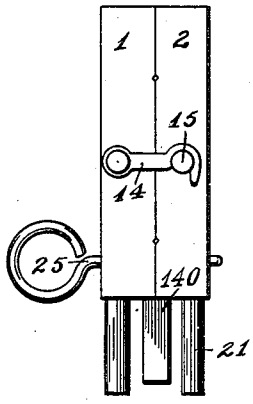


Fig. 2

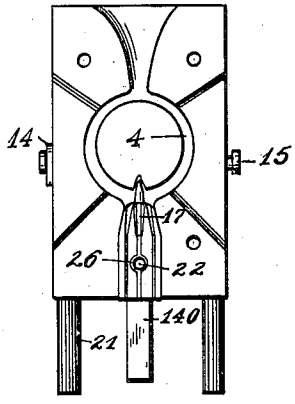


Fig. 3

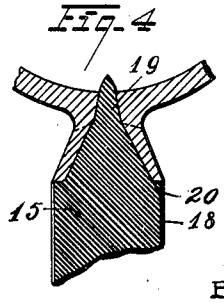


Fig. 4

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RING-MOLD.

No. 844,072. Specification of Letters Patent. Patented Feb. 12, 1907.

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To all whom it may concern:

Be it known that I, FRANK C. WIDMANN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Ring-Molds, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention relates to molds such as are used by jewelers for casting rings, and has for its object to simplify the construction of such molds by making the same of the smallest possible number of parts; to permit perfect casting, whereby the necessity of melting and recasting imperfect rings is avoided, with a consequent saving of time and expense; to provide a mold wherein the head which is cast on the ring for the setting will be given a shape that will adapt it for the reception of the setting without further manipulation, and generally to improve and simplify the construction of molds of this character. I accomplish these results by the invention illustrated in the drawings, described in the specification, and set out more particularly in the claims hereto appended.

Referring to the drawings, Figure 1 is a perspective view of the sections or parts forming the mold, showing the same prior to assembling. Fig. 2 represents a side elevation of the assembled mold. Fig. 3 represents an elevation of one of the mold-sections with the core in place therein, and Fig. 4 an enlarged sectional view of the head-core and the adjacent portion of the ring.

Describing the parts by reference characters, 1 and 2 designate the body portions or sections of the mold. These sections may be formed of rectangular blocks, as shown, and they are provided each with an incomplete annular groove 3 4, respectively, whereby when the sections are assembled, a complete mold-groove is provided for the body of the ring. Each groove 3 4 is provided with a suitable number of vents 5 6, formed in the inner faces of the sections 1 2 and extending to the sides thereof, placing the mold-groove in communication with the atmosphere. Four such vent-passages are shown, the passages in one member matching those in the other, whereby when the sections are assembled four complete vent-passages are provided, extending from the mold-groove to the outside of the mold, as shown in Figs. 1 and 2. Two of these vent-passages communicate with the upper portion of the ring-mold groove and extend thence upwardly to the outer surface of the mold, while the remaining two communicate with the lower portion of the ring-mold groove and extend downwardly to the exterior of the mold.

The mold-section 1 is provided with pins 7 and the section 2 with holes 8, so located as to enable the sections to be assembled with grooves 3 and 4 and with vent-passages 5 and 6 in opposition to each other. Each of the sections 1 and 2 is provided with an inlet-groove 9 10, respectively communicating with its mold-groove, said inlet-grooves forming when the sections are assembled a hopper-like inlet for pouring the molten metal into the mold. Each of the sections 1 and 2 is also provided in the lower portion thereof with a groove 11 12, respectively, extending from the lower surface of the section to the lower portion of the ring-mold groove. These grooves are of such shape as when the sections are assembled to provide a passage-way adapted to receive and closely surround the core 13, by which the ring-head is formed. To secure the parts of the mold together, I provide each section with a hook 14 and stud 15, whereby the parts may be held in operative relation during the operation of casting.

The core 13 is preferably an integral body having a stem 140, adapted to project through the lower portion of the mold, and an enlarged body portion 150, the lower portion of which is substantially cylindrical and the upper portion 16 of which is frusto-conical. The frusto-conical surface is provided with grooves 17, said grooves diminishing in cross-section from the top to the bottom thereof to form correspondingly-shaped claws or arms for the setting. The lower end of each of these grooves communicates with a vent-passage 18, extending the length of the cylindrical portion of the core and communicating with the exterior of the mold. By the provision of the vent-grooves 5, 6, and 18 I am always able to obtain a perfect casting, with the result that no time is lost in molding and recasting metal which has once been poured in the mold, the only oper-

ations necessary to be performed after casting being the filing and finishing of the ring and the fitting of the setting.

In all other molds of which I have any knowledge the claws or arms of the ring-head are either parallel with each other or convergent, making it necessary to spread the arms or claws apart for the reception of the setting. This is an operation which not only consumes time, but requires the exercise of considerable skill in order to give the same angle of divergence to each of the arms or claws.

By reference to Fig. 4 it will be seen that the upper end 19 of the body of the core 13 is substantially conical, the apex of the core projecting through the ring-groove to form the opening through the body of the ring behind the setting. The bottoms of the grooves 17 extend to this tapered body portion 19, and at the lower ends of said grooves are provided shoulders 20, which define the ends of the claws or arms of the head. By making the body 15 of the maximum diameter of the head and by providing the recesses or grooves 17, the bottoms of which are the tapered outer surface of the conical body 19, I am enabled to form the head with diverging arms or claws, whereby the said arms or claws are of a proper shape to receive the setting and require only to be filed and polished to fit them for the reception of such setting.

I may provide the lower ends of the mold-sections with feet 21, extending below the stem 14, whereby the mold may be supported during the operation of casting. To retain the core in place, I provide the same with a hole 22, extending transversely therethrough, and provide each of the members 1 and 2 with corresponding holes 23 and 24. A pin 25 may be inserted through the holes 22, 23, and 24, and thus hold the core in position during the casting operation. The provision of these holes in the mold-sections and in the core facilitates the assembling of the core in such position as to insure the proper location of the claws or arms to produce a symmetrical ring-head. It will be noted that the opposite ends of the hole which extends through the body of the core terminate in vent-passages. To prevent the pin from blocking the vent-passages, the ends of the holes are reamed out or otherwise enlarged, as shown at 26, thereby preventing the obstruction of such passages by the pin.

It will be seen from the description and drawings that I have produced a very simple and efficient mold. The mold proper, comprising the core for forming the ring-head, consists of but three parts, and these parts are of such shape as to be produced at a small expense and to be readily assembled and disassembled. At the same time by the location and arrangement of vents I am enabled to avoid loss of time through imperfect castings.

Having thus described my invention, I claim—

1. In a ring-mold, the combination of a body portion having therein a mold-groove for the body of the ring, and a core for forming the head of the ring, said core being provided with diverging grooves and a vent-passage extending from the outer end of each of said last-mentioned grooves to the exterior of the mold, substantially as specified.

2. In a ring-mold, the combination of the body of the mold having a mold-groove therein for the body of the ring, of a core for forming the head of the ring, said core having a conical body portion at the inner end thereof with diverging grooves communicating with the mold-groove, and vent-passages formed in the body of the core and establishing communication between said mold-groove and the atmosphere, substantially as specified.

3. In a ring-mold, the combination of the body of the mold having a mold-groove therein for the body of the ring, of a core for forming the head of the ring, said core having a conical body portion at the inner end thereof with diverging grooves communicating with the mold-groove and vent-passages formed in the body of the core and extending from the outer ends of the diverging grooves, substantially as specified.

4. In a ring-mold, the combination of a body portion having therein a mold-groove for the body of the ring provided with vent-grooves communicating with the atmosphere, and a core for forming the head of the ring, said core being provided with grooves for forming the arms or claws of the head and vent-grooves communicating with the outer ends of said grooves and with the atmosphere, substantially as specified.

5. In a ring-mold, the combination of a body having therein a mold-groove for the body of the ring, and a core for forming the head of the ring, said core comprising a substantially cylindrical body portion having a frusto-conical head, said head being provided with grooves for forming the arms or claws of the ring, said body portion being provided with vent-passages therein extending from the ends of the grooves to the atmosphere, substantially as specified.

6. In a ring-mold, the combination of a body having therein a mold-groove for the body of the ring, and an opening extending from said mold to the exterior of said body, and a core removably fitted in said opening and having grooves for forming the claws or arms of the ring-head, and vent-passages extending from said grooves to the atmosphere, substantially as specified.

7. In a ring-mold, the combination of a

body having therein a ring-mold groove and a passage-way extending from the lower portion of said groove to the outer surface of the mold, said passage-way having a tapered inner portion communicating with the ring-mold groove and a cylindrical outer portion extending to the lower portion of the mold, a core having a cylindrical body portion and a tapered inner end adapted to fit the corresponding portions of the passage-way, the tapered portion being provided with grooves for forming a ring-head and with vent-passages extending from said grooves to the exterior of the mold, and means for securing said core in place in said body, substantially as specified.

8. In a ring-mold, the combination of a body having a mold-groove therein and a passage-way extending from said groove to the outer surface of the mold, said passage-way being substantially frusto-conical in section at its inner end, and a core for said passage-way having an inner conical body portion, and a frusto-conical portion fitting the corresponding portion of said passage-way, grooves being formed in said frusto-conical portion of the core-body extending from the outer surface thereof to the conical body portion, substantially as specified.

9. In a ring-mold, the combination of a body having therein a mold-groove for the body of the ring and a core for forming the head of the ring, said core comprising an inner end portion provided with grooves for forming diverging arms or claws and an outer portion extending through and to the exterior of the mold and having vent-passages therein extending from the outer ends of said grooves to the atmosphere, said mold-body having vent-passages therein extending from the mold-groove to the atmosphere, substantially as specified.

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

FRANK C. WIDMANN.

Witnesses:
J. B. HULL,
ALBERT H. BATES.