

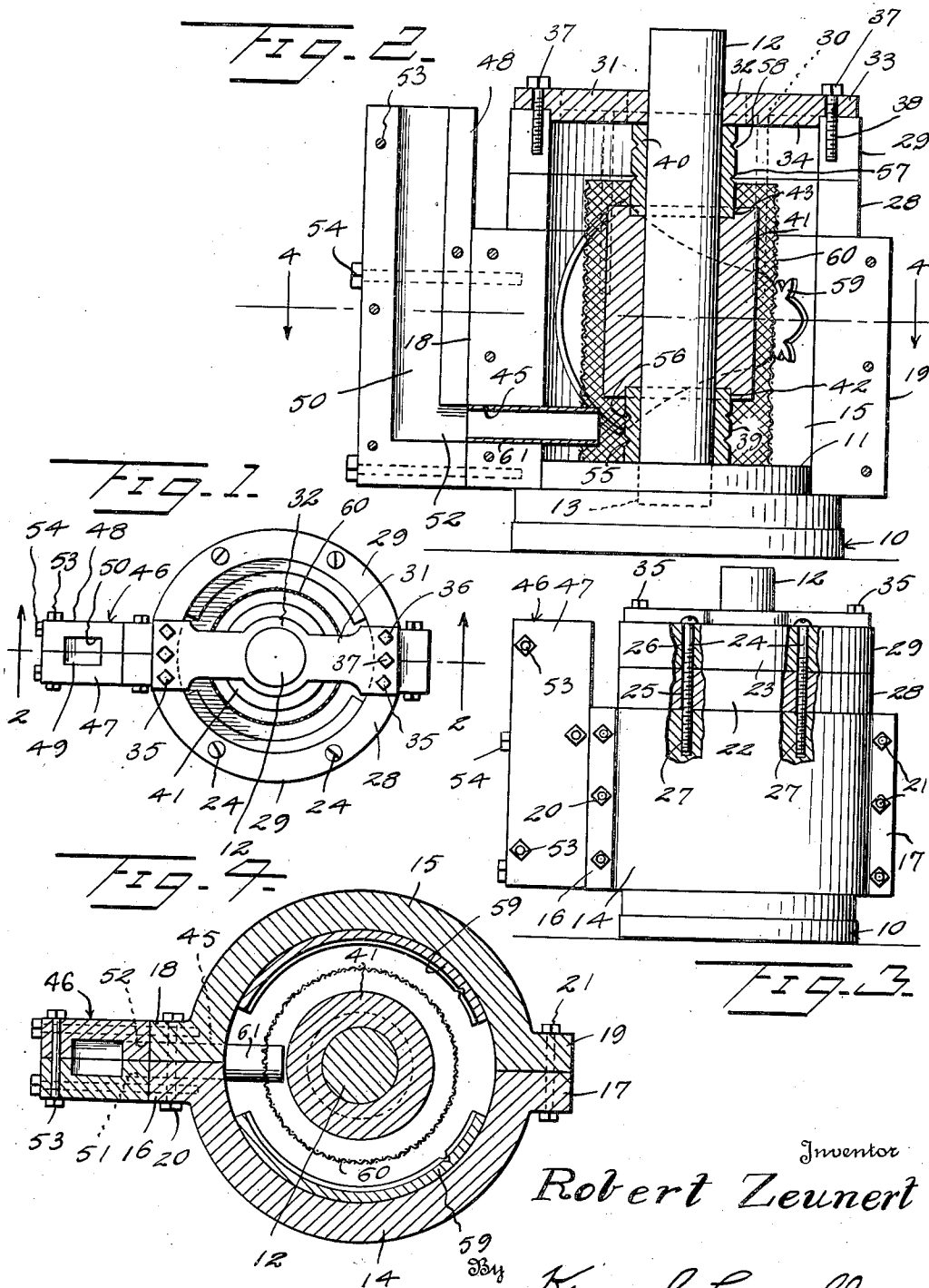
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R. ZEUNERT

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MOLD

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Inventor
Robert Zeunert
Kimmel & Crowell
Attorneys

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MOLD

Robert Zeunert, Chicago, Ill.

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1 Claim. (Cl. 22—153)

This invention relates to molds and more particularly for a mold for forming a cylindrical die having a design recessed therein.

An object of this invention is to provide an improved mold by means of which a cylindrical die may be formed which has recessed in the periphery thereof a suitable design so that the casting may be used in the formation of plastics having a raised ornament or design.

Another object of this invention is to provide an improved method of forming a die which includes providing a split mold and adhesively securing the ornament or design on the inner arcuate surface of one or more portions of the mold so that when the molten metal is poured into the mold, the ornament will appear as a recess in the die.

A further object of this invention is to provide an improved method of producing a cylindrical ornamented die which includes a molding means so formed as to substantially eliminate the machining of the die after it has been cast, the mold including means for supporting die bearings therein in order that the bearings may be embedded in the metal forming the die.

A further object of this invention is to provide an improved mold for producing a cylindrical ornamented die which is formed in sections adapted to be superposed one upon the other so that different lengths of dies may be formed from the same base mold structure.

A further object of this invention is to provide a mold of this character which may be used for the formation of a number of dies and which will eliminate the use of molding sand.

To the foregoing objects and to others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and illustrated in the accompanying drawing wherein are shown embodiments of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawing:

Figure 1 is a detail top plan of a mold constructed according to an embodiment of this invention.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a detail side elevation partly broken away and in section of the assembled mold.

Figure 4 is a sectional view taken on the line 4—4 of Figure 2.

Referring to the drawing, numeral 10 designates generally a base member which in the present instance is annular in configuration and is formed with a reduced annular upper part 11 which forms the bottom wall of the assembled mold. The base 10 in substantially the center thereof is provided with an upwardly opening socket 13 within which the lower end of an upstanding shaft 12 removably engages.

A pair of semi-cylindrical mold forming bodies 14 and 15 are adapted to engage about the upwardly offset reduced part 11 and to extend upwardly therefrom. The exterior diameter of the upwardly offset base part 11 is substantially equal to the inner diameters of the mold forming bodies 14 and 15. The body 15 is provided along its vertical free edges with a pair of laterally projecting ears 16 and 17 and the mold forming body 15 is provided with a pair of upstanding laterally projecting ears 18 and 19, which are adapted to confront the ears 16 and 17. The two mold forming bodies 14 and 15 are held tightly together by means of fastening devices 20 which engage through the ears 16 and 18 and by fastening devices 21, which engage through the ears 17 and 19.

A pair of semi-circular mold extension members 22 and 23 are adapted to engage on the upper surface of the body 14 and are secured thereto in superposed relation by means of bolts or machine screws 24, which extend downwardly through openings 25 and 26 formed in the mold extension members 22 and 23, respectively, and are threaded into threaded sockets 27 which are formed in the upper edge of the body 14. A second pair of mold forming extensions 28 and 29 are disposed in superposed relation on the mold forming body 15, being secured in superposed relation on the upper edge of the body 15 by means of bolts 30 or the like. When the two bodies 14 and 15 are secured together, the open ends of the extension 22, 23, 28 and 29 confront each other so as to form a continuous cylindrical mold extending upwardly from the base member 10.

The shaft 12 is held axially of the base 10 and of the cylindrical opening formed by the core bodies 14 and 15 and extensions disposed in superposed relation thereupon by means of a diametrically disposed shaft support bar 31. The bar 31 is provided at a central point with an enlarged shaft receiving bushing 32 and at the opposite ends thereof, the bar 31 is provided with upwardly offset ears 33 so that a portion 34 of the bar 31 may extend partly into the uppermost

of the pairs of extensions 23 and 29. The bar 31 is secured to the mold extensions 23 and 29 by means of bolts 35 and 36 and an intermediate bolt 37 is extended through the ears 33 of the bar 31 and threadably engages in a threaded opening 38, which is formed partly in the free edge of the uppermost extension 23 and partly in the confronting edge of the extension 29. A lower removable sleeve 39 is disposed about the shaft 12 and at its lower end rests on the upper surface of the offset base member 11.

A second or upper removable sleeve 40 is disposed in upwardly spaced relation to the lower sleeve 39 and is held in spaced apart relation with respect to the sleeve 39 by means of a cylindrical core member 41. The upper end of the lower sleeve 39 is removably extended as at 42 into the lower end of the cylindrical core 41 and the lower end of the upper sleeve 40 is removably extended into within the upper end of the cylindrical core 41 as at 43. The sleeve 39 forms a combined holding, supporting and spacing element for the lower end of the core during the molding operation. The sleeve 40 forms a combined holding and spacing element for the core during the molding operation. The sleeve 39 spaces the core from the base member and the sleeve 40 spaces the core from the bar 31. The core 41 loosely engages about the shaft 12 and when the two sleeves 39 and 40 and the frangible core 41 are in applied position about the shaft 12, the upper end of the bearing sleeve 40 will substantially contact with the under-surface of the shaft supporting bar 31. The supporting bar 31 not only provides a means for holding the shaft 12 concentric of the mold forming bodies 14 and 15, but also provides a means for holding the semi-cylindrical mold extensions in assembled position.

The molten metal is adapted to be poured into the assembled mold from a point adjacent the lower end thereof, the mold forming bodies 14 and 15 being provided with complementary and confronting semi-cylindrical openings 44 and 45 which also extend horizontally outwardly through the ears 16 and 18, respectively. A removable boxing generally designated as 46 is adapted to be mounted on the vertical edges of the ears 16 and 18 and comprises a pair of complementary housing members 47 and 48 which are formed with vertically disposed complementary passages 49 and 50, respectively. The lower ends of the passages 49 and 50 communicate with horizontal passages 51 and 52 and the horizontal passages 51 and 52 are adapted to be disposed in horizontal alignment with the horizontal passages 44 and 45. The complementary housing members 47 and 48 are secured together by means of fastening devices 53 and the assembled housing 46 which constitutes a pouring spout is secured to the ears 16 and 18 by means of fastening devices 54.

The lower removable sleeve 39 is provided in the peripheral surface thereof with a pair of V-shaped grooves or channels 55 and 56 within which the molten metal is adapted to engage so that when the sleeve 39 is cast or embedded with the die, the sleeve 39 will be held against endwise movement and against rotary movement relative to the die by the metal which will flow into the grooves 55 and 56. The upper sleeve 40 is also provided with a pair of V-shaped recesses or annular channels 57 and 58 within which the molten metal is adapted to engage so that when the die is removed from the mold

and is placed in use, the upper bearing 40 will be held against endwise and circumferential movement relative to the die.

In order to provide a means whereby an ornament may be formed as recesses in the die which is cast in the mold hereinafore described, I have provided an ornament 59 which is of arcuate configuration in horizontal section and is adapted to be adhesively secured to the inner surfaces of the mold forming members 14 and 15. In Figure 4, there are disclosed two of these ornaments 59 with one of the ornaments adhesively secured to the inner surface of the mold body 14 and the other ornament adhesively secured to the inner face of the mold forming body 15. It will be understood that if desired, there may be only one of these ornaments within the mold so that the cast die will only have one ornament recessed therein.

The ornament 59 may be made out of any suitable material such as clay or the like which will not be damaged or burnt by the molten metal and the ornament is preferably adhesively secured by any suitable adhesive to the inner surface of one or both of the mold forming bodies 14 and 15. Where the ornament 59 is substantially wider than the height of the mold forming bodies 14 and 15, the ornament may have a portion thereof adhesively secured to one or more of the mold forming extensions secured to the upper ends of the mold forming bodies 14 and 15.

In order to provide a means whereby the molten metal which is poured into the mold hereinafore described may be screened as it flows upwardly in the mold so as to remove any scale or other foreign matter from the major part of the outer portion of the body of metal supplied to the molding chamber and for such purpose a removable upstanding filtering screen 60 is provided. The screen 60 is of cylindrical form and is disposed about and in spaced relation with respect to the core member 41 and it is also spaced from the side wall of the molding chamber or cavity. The lower end of the filtering screen 60 is adapted to rest on the base member 11 and extends upwardly above the core member 41. The length of the filtering member 60 is preferably slightly shorter than the depth of the mold. The filtering screen 60 may be made of metal or other suitable material which will become embedded within and reinforce the die but which will not melt under the heat of the molten metal. A metal conducting tube 61 is disposed in the confronting channels 45 of the mold sections and extends inwardly into the interior of the mold and projects slightly through the filtering screen 60 adjacent the lower end thereof. The conducting tube 61 after the die has cooled is adapted to be cut off at the periphery of the die and will have a portion thereof embedded within the die.

In the use of this mold structure the mold members 14 and 15 with the extensions 22, 23, 28 and 29 are secured tightly together by the fastening devices 20 and 21 and the extension securing members 24 and 30. The ornament 59 is adhesively secured to the inner surfaces of one or both of the mold forming bodies 14 and 15 in the desired position between the upper and lower ends of the mold and the shaft 12 is inserted in the socket 13. The sleeves 39 and 40 with the cylindrical core 41 are then placed about the shaft 12 and the clamping bar 31 is then secured to the upper ends of the extensions

23 and 29. The intake housing 46 through which the molten metal is adapted to pass is secured to the ears 16 and 18 and then the molten metal may be poured through the confronting passages 49 and 50 so that the molten metal will flow through the confronting passages 44 and 45 carried by the ears 16 and 18, respectively.

The molten metal may be poured until it reaches the undersurface of the bar 31. After the molten metal has cooled, the mold forming bodies 14 and 15 and the several mold body extensions may be separated and the shaft 39 removed from the base 10 and from the sleeves 38 and 40. The frangible core 41 may then be broken or otherwise removed from the center of the die and the exterior surface of the die may then be smoothed off if such operation is necessary.

The peripheral surface of the die will have recessed therein the configuration of the ornament 59 and thereafter the die may be used in the conventional manner in forming embossed designs in plastic or other material. By providing an improved mold as hereinbefore described the process of forming a cylindrical die with a recessed ornament has been greatly simplified and the mold may be used for any number of times that may be considered necessary with the same ornament. It will be apparent that the same size mold may be formed for different ornaments by merely removing the ornament 59 and adhesively securing one or more different ornaments within the mold forming bodies. After the die has been removed from the mold, there will

be an L-shaped projection extending therefrom which embodies the molten metal which remains in the pouring spout. This metal may be removed from the die by cutting the same at the point where the L-shaped metal merges with the die.

What I claim is:

A mold comprising a base having an inset upper portion, a knockdown body of annular form seated on said base, encompassing said portion and forming in connection with the latter a cylindrical molding chamber, a shaft seated at its lower end in and axially of said portion and extended above said body, said body being formed in proximity to said portion with a horizontal passage opening into said chamber, a housing secured against said body and provided with an upstanding L-shaped channel having its horizontal leg registering with the outer end of said passage, a bar secured to and disposed diametrically of the top of said body and through which said shaft extends, a core within said chamber and arranged above said passage and spaced from said bar, a vertically disposed combined holding, supporting and spacing element for the core mounted at its lower end on said portion, encompassing said shaft and detachably engaging at its upper end in the bottom of the core, a vertically disposed combined holding and spacing element having its upper end abutting said bar, encompassing said shaft and having its lower end detachably engaging in the top of the core, and an ornament on the inner face of said body spaced from the core.

ROBERT ZEUNERT.