DE WITT T. MOATS.

FINGER RING CASTING PATTERN.

APPLICATION FILED DEC. 15, 1920.

1,389,315.

Patented Aug. 30, 1921.

2 SHEETS—SHEET 1.

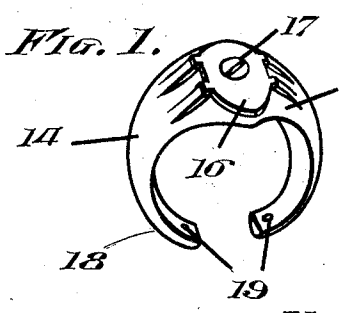


FIG. 1.

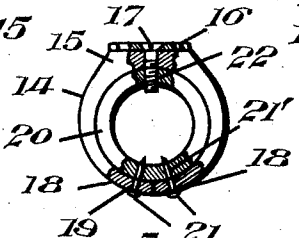


FIG. 2.

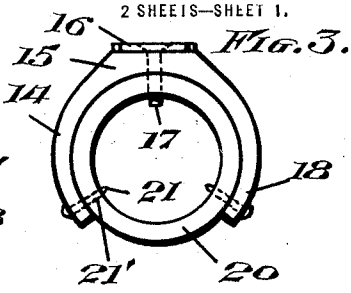


FIG. 3.

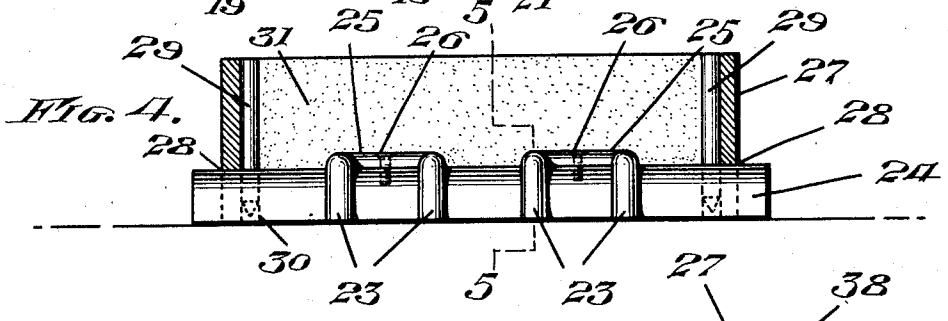


FIG. 4.

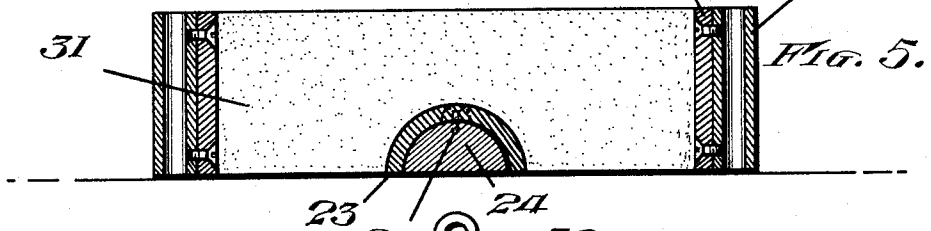


FIG. 5.

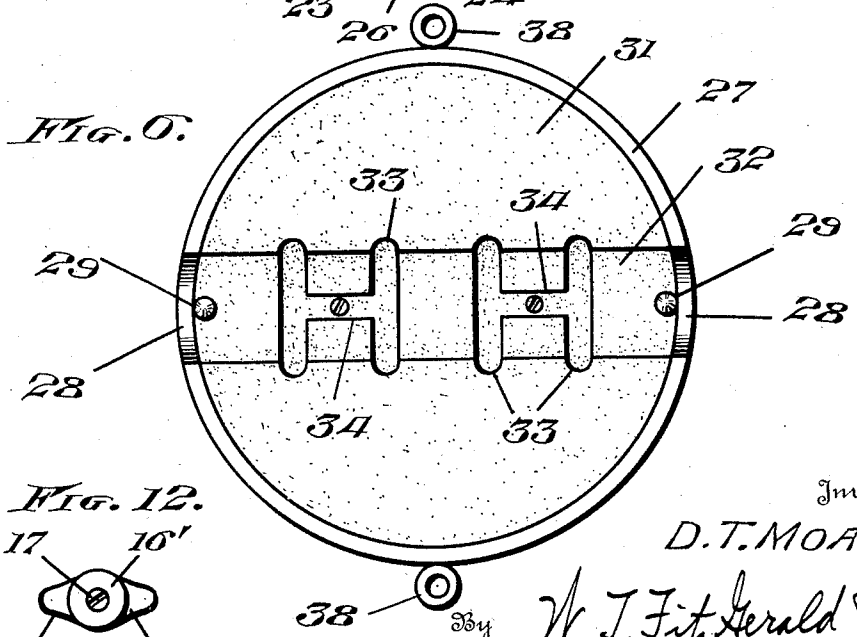


FIG. 6.

FIG. 12.

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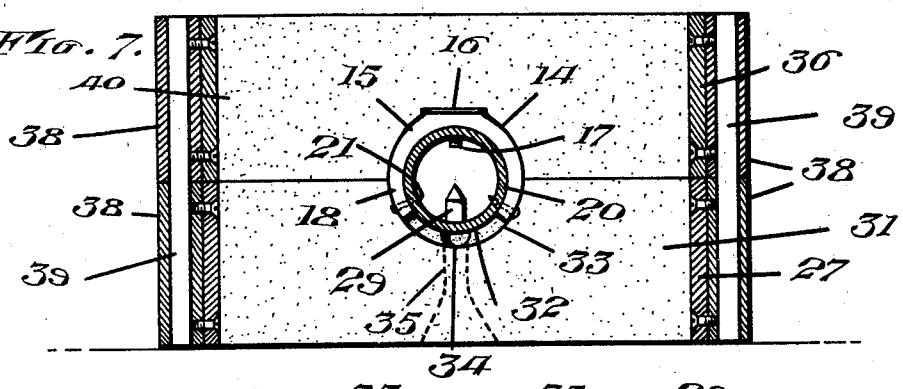
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2 SHEETS—SHEET 2.

FIG. 7.



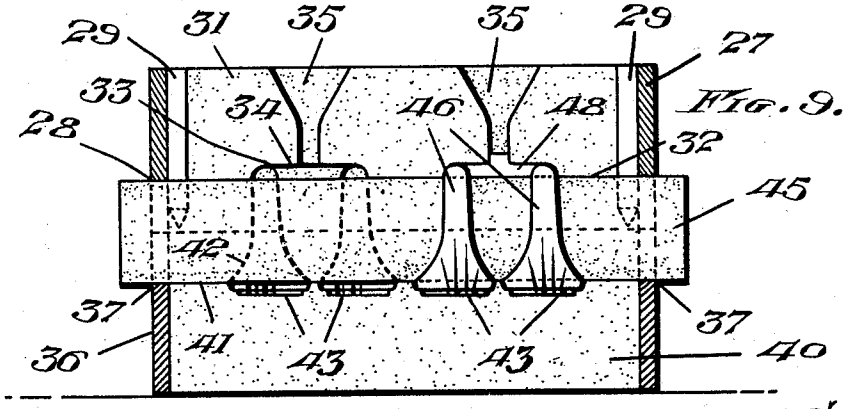
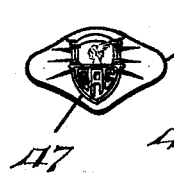


FIG. 9.

FIG. 10.



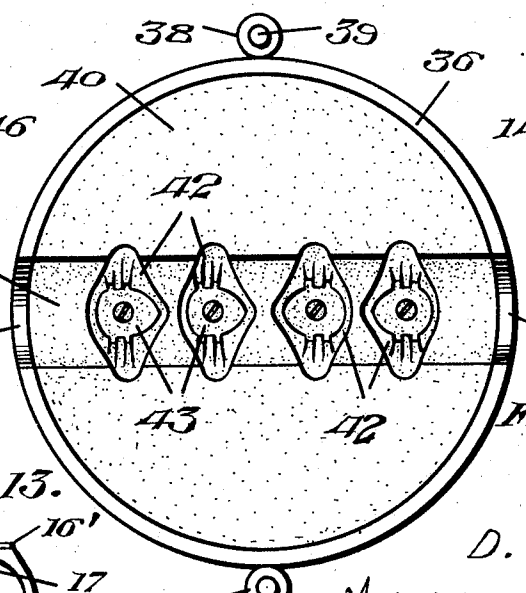


FIG. 8.

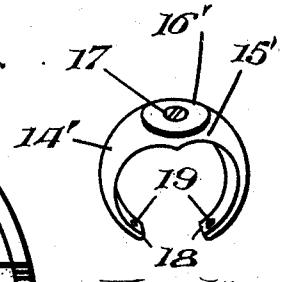
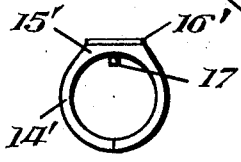


FIG. 11.

FIG. 13.



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UNITED STATES PATENT OFFICE.

DE WITT T. MOATS, OF INDIANAPOLIS, INDIANA.

FINGER-RING-CASTING PATTERN.

1,389,315. Specification of Letters Patent. Patented Aug. 30, 1921.

Application filed December 15, 1920. Serial No. 430,895.

To all whom it may concern:

Be it known that I, DE WITT T. MOATS, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Finger-Ring-Casting Patterns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to the art of casting finger rings, and more particularly to patterns used in the making of the molds.

It is an object of the invention to facilitate the making of the molds for various sizes of rings, from the smallest to the largest, and to save time and work whereby to increase production at lower cost, and a further object, in this connection, is the provision of a novel pattern for the top or crown half or portion of the ring which can be used for all sizes of rings within practical limits.

Another object is the provision of a flexible or resilient pattern member, composed of rubber or similar material, which can be used upon mandrels of various sizes for rings of different diameters, with equal facility and success, thereby eliminating the necessity for using a special top patern memfor each size of ring, and thereby enhancing the making of molds for the different sizes, when a variety of sizes are wanted with the same patern for the top or crown of the ring, such as rings for high school students, fraternities, clubs and the like.

A still further object is the provision of such a flexible pattern member having a fixed top piece to provide for a uniform blank top pattern impression when using the pattern for different sizes of rings, and also providing means for securing the pattern member to the mandrel in connection with a screw or the like.

Still another object is the provision of such a pattern member for use on mandrels of different diameters, used in connection with a half pattern on a half mandrel for making the lower half of the ring impression in the mold, whereby the eleastic pattern member including the pattern or design of the top or crown can be used with the lower half patterns for different sizes of rings, instead of requiring a special upper half pattern for each corresponding lower half pattern.

The invention also aims to provide such an elastic pattern device which is extremely simple in construction, but nevertheless thoroughly practical and efficient in use.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a perspective view of the improved top half pattern.

Fig. 2 is an end view of the smallest size mandrel with the pattern thereon, portions being shown in section.

Fig. 3 is an end view of a larger size mandrel with the pattern thereon.

Fig. 4 is a side elevation of the half mandrel and lower half patterns thereon, showing the corresponding section of the mold flask thereon, as when forming one half of the mold.

Fig. 5 is a section on the line 5—5 of Fig. 4.

Fig. 6 is a plan view of said flask section showing the completed half of the mold and impression therein.

Fig. 7 is a section on the same plane as in Fig. 5, showing the complete flask and the full mandrel therein with the top patterns thereon, showing the completion of the mold.

Fig. 8 is a plan view of the second section of the flask showing the top half impressions in the second half of the mold.

Fig. 9 is a diametrical section of the completed mold with the core therein, showing two of the rings cast and the other ring impressions or recesses ready for pouring.

Fig. 10 is an elevation of the completed ring.

Fig. 11 is a perspective view of the blank top pattern which can be finished according to the contour of top or crown desired, and from which the pattern shown in Fig. 1 can be made.

Fig. 12 is a top view of the pattern shown in Fig. 11.

Fig. 13 is an edge view of such pattern.

The elastic top or crown half pattern is shown in Figs. 1, 2 and 3, and comprises an arcuate pattern member 14 of rubber or similar material, whereby it is flexible or bendable and intermediate its ends said member

14 has the top or crown portion 15 cut or shaped to conform to the desired pattern of top that is wanted, and on the face of the top portion 15 is a piece or plate 16 of sheet metal or other suitable stiff material, which is cut to the desired contour or pattern, to provide the top pin blank. A screw 17 extends through the top piece 16 which has a central aperture, and said screw also extends through the top portion 15 of the member 14, and said piece 16 also serves as a washer for the screw to assist in clamping the member 14 on the mandrel, as hereinafter described. The member 14 has the terminals 18 which are tapered down to the cross section of the shank or band of the ring and said terminals have apertures 19 to assist in clamping them in place. The member 14 is resilient and normally contracts, but it can be opened or spread so as to increase the diameter whereby said pattern can be placed on mandrels of different diameters, and although the radius of the top portion 15 is changed slightly in placing the member 14 on mandrels of different diameters, the top piece 16 is fixed or rigid so as to maintain the same identical pattern or design for the top for all sizes of rings. Therefore, although the member 14 is bendable or expansible to different diameters, the top piece 16 is rigid and defines a fixed or non-changeable blank face for the top portion 15.

In Fig. 2 the pattern is shown as embracing a mandrel 20 of smallest size or diameter, with the terminals 18 abutting. The terminals 18 are secured in place by meanas of pins 21 inserted inwardly through the apertures 19 and into apertures 21′ in the mandrel 20 with which the apertures 19 register. The piece 16 and top portion 15 of the pattern are clamped to the mandrel by screwing the screw 17 into a threaded aperture 22 in the mandrel. The pattern is thus secured on the mandrel and conforms to the diameter of the mandrel.

The same pattern is shown as applied to a mandrel of larger diameter in Fig. 3, for a ring of larger size. In this case the member 14 in being fitted on the mandrel does not completely encircle same, and the terminals 18 are spread apart, and the pattern is secured to the mandrel by means of pins 21 and the screw 17, the pin holes or apertures 21′ of the mandrel being suitably positioned. In this way, the pattern can be placed on mandrels of various diameters, from the smallest to the largest within practical limits, requiring only a single pattern unit for the various sizes of rings, and although the diameter of the shank or band is changed, the pattern design of the face of the top is permanent. A number of the top patterns can be secured on the same mandrel for casting several rings simultaneously, as hereinafter set forth.

In coöperation with the top half pattern and its full mandrel, there is employed a lower half or shank pattern 23 fitted on a half madrel 24. As shown in Fig. 4, several of the half or shank patterns 23 are disposed on the half mandrel 24, for casting four rings at the same time, although this is a mere duplication. Each pattern 23 is of semi-circular form to extend transversely across the curved surface of the mandrel 24, which is one-half of a cylinder, and the patterns 23 can be of different sizes, that is, thicknesses and widths, for light, medium and heavy weight rings. It will be understood that for each size full mandrel, a corresponding half mandrel of equal radius is used so that there is a full mandrel and a half mandrel for each size or diameter of ring. The patterns 23 are of suitable metal, and, as shown, the intermediate portions thereof are connected in pairs by runner forming portions 25, and said portions 25 are fastened by screws 26 to the mandrel 24, thus securing the patterns 23 on said mandrel.

In carrying out the process of forming the mold and completing the casting of the rings, the half mandrel 24 is placed flat side down on a surface, as seen in Figs. 4 and 5, and the flask section 27 is placed over said mandrel, said section having notches 28 to fit the mandrel which projects at its ends from said flask section, as seen in Fig. 4. A flask for each diameter of ring is used, so that the notches 28 fit the corresponding half mandrel, and location pins 29 are secured to the flask section 27 and project from the edges of the notches 28 to enter apertures 30 in the mandrel 24, thereby locating the mandrel and flask section with respect to one another. The sand 31 is then poured within the flask section 27 and rammed or packed tight in the flask section, thereby completing one-half of the mold, as shown in Fig. 6, the flask section being inverted and the mandrel 24 lifted off of the section 27 and out of the sand. This leaves a channel impression 32 for the core and transverse ring impressions 33 to define the lower halves or shanks of the rings, which impressions 33 will be of widths and depths according to the particular patterns 23 used for the corresponding weight of rings wanted. The portions 25 will leave runner channels 34 between the impressions 33, and the pouring openings 35 are then formed, as usual, and of funnel shape, as seen in Fig. 9.

The other half of the mold is then made by placing the corresponding mandrel 20 in the channel impression 32 on the flask section 27, said mandrel 20 also having apertures similar to the apertures 30, to engage the location pins 29, whereby to properly position the mandrel 20 and patterns thereon. The terminals 18 of the pattern members 14 will extend and fit within the ring impressions

33, as seen in Fig. 7, whereby said impressions 33 accommodate the terminals of the pattern members 14 of any corresponding size of mandrel 20. The other flask section 36 is then placed on the section 27, and has notches 37, corresponding with the notches 28, to fit the mandrel 20 which projects through said notches from the flask. Sleeves or sockets 38 are secured to opposite sides of the flask sections to receive location pins 39, whereby the flask sections are made to come together and match properly and accurately.

The top half of the mandrel 20 and top portions of the patterns thereon project above the sand 31 of the completed half of the mold, and the other half of the mold is now made by pouring and ramming the sand 40 within the flask section 36. The flask section 36 is then lifted off of the sections 27, or the sections otherwise separated, and the mandrel 20 then removed. This leaves in the sand 40 a channel impression 41 complementing the impression 32 in the sand 31 to receive the core, and transverse impressions 42 extend across the impression 41 and define the top halves of the rings, the top portions 15 and pieces 16 leaving the negative impressions 43 of the tops or crowns. Then, by bringing the two flask sections together, assisted by the location pins 39, with a core 45 between the mold sections, the mold is prepared for receiving the molten metal. Thus, the core 45 takes the place of the mandrel 20, and the impressions 33 and 42 register and define the outlines of the rings, with the flask section 36 at the bottom whereby the top impressions 43 are at the bottom and the pouring openings 35 at the top. The molten metal is then poured into the openings 35 to flow through the runner channels 34 into the impressions, and when the metal cools, it leaves the rings 46 on the core 45, as seen in Fig. 9, which can be removed from the sand. These rings 46 have the tops or crowns conforming to the design or pattern, and the rings are connected in pairs by the metal 48 in the channels 34, which is cut off from the rings and the rings then finished to remove any rough edges. Suitable top pieces 47, which are struck from dies, can then be soldered or otherwise secured on the top or crown faces of the rings.

The process is the same when top half patterns are used on mandrels 20 of different diameters, so that it is only necessary to use the lower half or shank patterns 23 of different sizes for the various sizes of rings, and the top patterns can be readily removed and transferred from one mandrel 20 to another, thereby saving considerable time in casting rings of different sizes. Furthermore, with the present arrangement, the top impressions will all be the same for rings of various sizes, inasmuch as the top pieces 16 are unyielding although the members 14 are bent or expanded for different diameters, and said top pieces define the tops in blank so that suitable top or crown pieces of the particular design can be attached.

According to the present prevailing practice, blank rings of medium size are cast, and to obtain rings of larger and smaller sizes, such medium size rings are made smaller and larger accordingly. Thus, for smaller size rings, portions of the shanks are cut out, the ends of the shanks soldered together or otherwise fastened, and for larger rings, pieces are inserted in the shanks or bands of the medium size rings. With such rings, the shanks or bands have joints which sometimes break open, and, furthermore, the cutting out of portions from or the insertion or the addition of portions to the medium size rings involves considerable work, time and expense, which is eliminated by the present invention. Also, in bending the rings according to the present practice, for making smaller and larger sizes, the top or crown portions are bent, and require trimming to make the faces flat. Thus, in bending the rings to smaller sizes the faces of the tops are convexed, whereas when the rings are bent for larger diameters, the faces are concaved, requiring further work and time to finish the top portions for the attachment of top pieces.

In Figs. 11, 12 and 13 a blank top pattern is shown in which the member 14′ has sufficient stock, especially at the portion 15′ so that the rubber can be cut away to shape the pattern for any particular design, and the top piece 16′ is a disk, which can be cut down or trimmed to the particular contour, design or pattern wanted. Thus, the member 14′ and its top portion 15′ and the disk or blank piece 16′ can be cut or trimmed to the pattern or design shown in Fig. 1, or to produce any other suitable design. These blank patterns can be thus supplied for producing the finished top patterns and of various designs to be used in the production of rings of various sizes having the same design for the top or crown portion.

Having thus described the invention, what is claimed as new is:—

1. A flexible top half ring pattern.

2. A ring pattern comprising a flexible arcuate member having a top portion with a fixed face and flexible terminals bendable to fit on mandrels of different diameters, with said top portion located between said terminals.

3. A flexible ring pattern having a fixed top portion.

4. A ring pattern comprising a flexible member having a top portion, and a fixed pattern top piece on said portion.

5. A ring pattern comprising an arcuate flexible member having a top portion, and a fixed pattern top piece on said portion,

said top portion being formed to match said piece.

6. A ring pattern comprising a flexible member having a top portion, a fixed pattern top piece on said portion, and means for securing said piece and member on a mandrel.

7. A ring pattern comprising a flexible arcuate member having a top portion, a fixed pattern top piece on said portion, said piece and portion being of corresponding design to define the top of the ring, and a screw or similar securing element engageable through said piece and portion for clamping them on a mandrel.

8. The combination in a ring pattern outfit, of a half mandrel having a lower half ring pattern thereon, a full mandrel corresponding with said half mandrel, and a top half ring pattern on the full mandrel, said top half ring pattern being arcuate and flexible and having a top portion between its ends, the ends of said top pattern being arranged to extend within a mold impression made by the lower half pattern.

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

DE WITT T. MOATS.

Witnesses:

LAWRENCE J. WELCH,

MARY K. DWYER.