No. 659,444. Patented Oct. 9, 1900.

# R. B. HASKINS & G. FISHER.

## MOLDER'S CHAPLET OR ANCHOR.

(Application filed Apr. 28, 1900.)

(No Model.)

Fig. 1

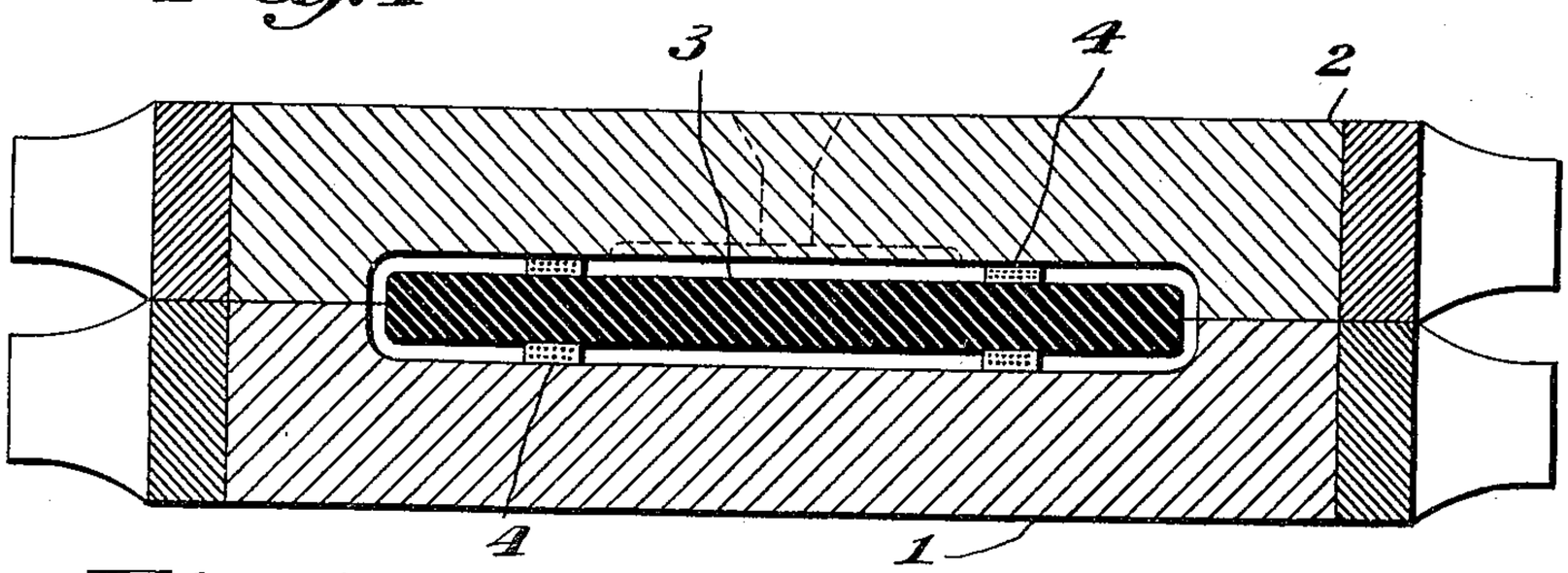



Fig. 2

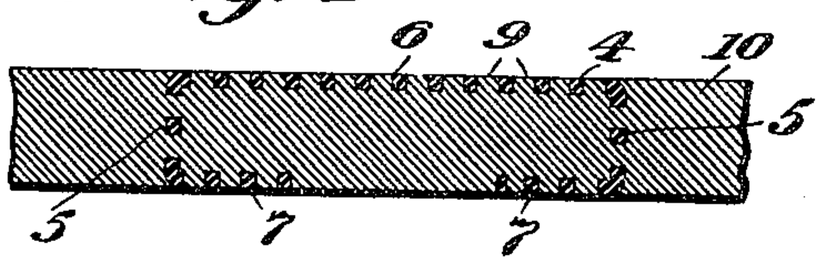



Fig. 3

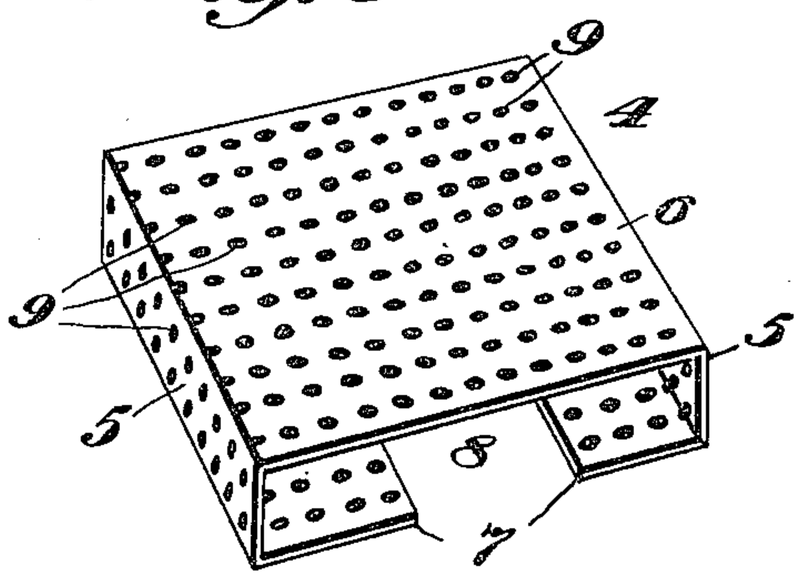



Fig. 4

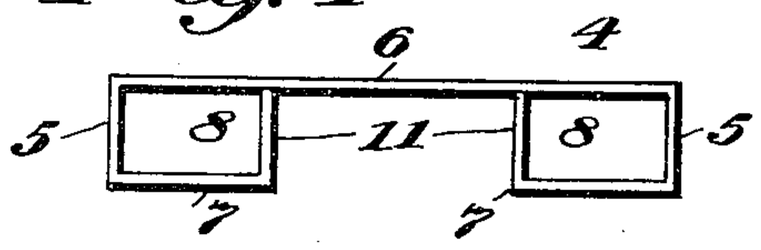



Fig. 5

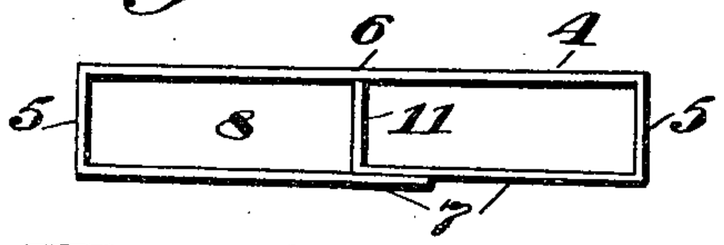



Fig. 7

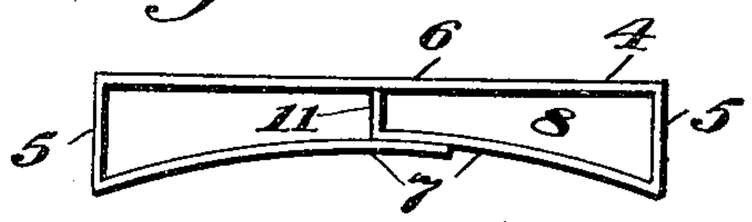



Fig. 8

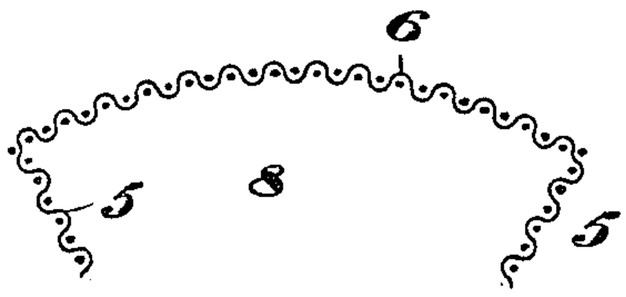
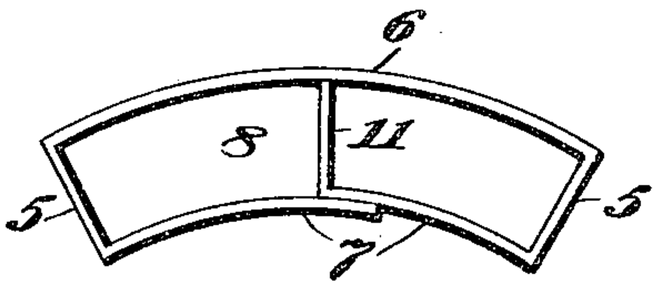



Fig. 6

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# UNITED STATES PATENT OFFICE.

ROBERT B. HASKINS, OF CINCINNATI, AND GEORGE FISHER, OF ELMWOOD PLACE, OHIO.

## MOLDER'S CHAPLET OR ANCHOR.

SPECIFICATION forming part of Letters Patent No. 659,444, dated October 9, 1900.

Application filed April 28, 1900. Serial No. 14,652. (No model.)

*To all whom it may concern:*

Be it known that we, ROBERT B. HASKINS, a resident of Cincinnati, and GEORGE FISHER, a resident of Elmwood Place, in the county of Hamilton and State of Ohio, citizens of the United States of America, have invented certain new and useful Improvements in Molders' Chaplets or Anchors, of which the following is a specification.

This invention relates to certain improvements in molders' chaplets or anchors, and has for its object to provide a device of this character of a simple and inexpensive nature which shall by reason of its features of improvement permit not only of a saving of time and labor of the workman in adjusting the core to the matrix of the mold in the making of hollow castings, but shall prevent, or at least very greatly lessen, the liability of flaws and defects in the casting such as commonly result from the use of anchors or chaplets of the ordinary kinds.

The invention consists in a molder's chaplet or anchor formed of a piece of metal having perforations extended through it for the passage of the gases and molten metal, so that the presence of air-bubbles and consequent defects in the casting at the chaplet are avoided and the molten metal by its entry into or passage through the perforations or openings of the chaplet forms a more perfect union with the same, so as to lessen the liability of cracking or breakage of the casting and avoid the necessity for thickening the same at the chaplet.

The invention also contemplates certain novel features of the construction, combination, and arrangement of the several parts of the improved chaplet whereby certain important advantages are attained and the device is made simpler, cheaper, and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claim.

In the accompanying drawings, which serve to illustrate our invention, Figure 1 is a sectional view taken through a molder's flask and showing the arrangement of chaplets or grains made according to our invention for supporting and positioning a core in the flask, and Fig. 2 is an enlarged partial sectional view taken through a fragment of a cored casting and showing a chaplet made according to our invention embedded therein. Fig. 3 is a perspective view showing one form of the chaplet made according to our invention and adapted for use where the core and matrix have parallel flat surfaces. Figs. 4 and 5 are end views showing other embodiments of our invention for use where the core and matrix have parallel flat surfaces. Fig. 6 is an end view showing an embodiment of the invention for use where the core and matrix have curved surfaces. Fig. 7 is an end view showing an embodiment of the invention for use where one of the surfaces is curved and the other surface is flat. Fig. 8 is an end view showing a form of the invention wherein the chaplet is produced from wire-cloth bent into the required form.

In the views, 1 indicates the drag, and 2 the cope, of the flask, while 3 indicates the core.

4 4 indicate the chaplets or anchors above and below the core 3 and of a thickness equal to the desired thickness of the casting, so arranged as to support the core 3 in proper central position in the matrix of the mold. Any desired number of the chaplets may be employed for properly supporting and positioning the core; but ordinarily it will be sufficient to employ two chaplets below the core, one adjacent to each end thereof and substantially along the center line of the core and two similarly-arranged chaplets above the core.

Each chaplet 4 is formed as herein shown of a piece of perforated or foraminous sheet metal bent at its end portions, as shown at 5 5, out of the plane of its central portion 6. As shown in Figs. 1 and 3, the bent end portions 5 5 have their extremities bent inwardly or toward each other to produce feet 7 7, which in this form of the chaplet extend parallel with the plane of the central portion 6, so as

to lie flush against the surface of the core or matrix, while the said central portion 6 is flush against the surface of the matrix or core, dependent on which side of the chaplet is uppermost.

The metal from which the chaplets are formed is usually tinned plate, although any metal which is suitable for the purpose may be employed in lieu thereof. The construction of the chaplet is such that a space or opening 8 is produced between the central portion 6 and the feet 7, said space being open at each end of the chaplet, so as to be adapted for the free passage of the gases and molten metal. The sheet metal of which the chaplet is made is perforated or foraminous, having openings 9 9 extended through it and closely adjacent and regularly recurrent throughout the whole extent of the sheet, said openings being adapted in the finished chaplet to afford communication with the space or chamber 8, so that the gases may escape freely therefrom through said openings 9. and thereby to insure against the formation of air-bubbles along the walls of the chaplet. By this means a close joint is assured between the cast metal and the walls of the chaplet, and the entry of the molten metal into the openings 9 will bind the chaplet securely to the casting in such away as to effectually guard against cracking and leakage of the cored casting at the chaplet.

The length of the bent end portion 5 5 between the central portion 6 and the feet 7 7 of the chaplet will be proportioned to the thickness of the casting to be made, so that in the finished casting 10 (see Fig. 2) the central portion 6 will be at one surface and the feet 7 7 will be at the opposite surface of the casting, the bent portions 5 5 extending through the casting and the openings 9 and space or chamber 8 of the chaplet being filled with cast metal, as clearly shown in Fig. 2, in such a way as to produce a tight joint and prevent flaws at the chaplet.

Where the adjacent faces of the core and matrix are parallel, other forms of chaplet may be also employed, as indicated in Fig. 4, where the extremities 11 of the bent ends 5 of which the feet 7 7 are formed are bent in planes parallel to the said end portions 5 and serve to support and brace the central portion 6 of the chaplet. In the construction shown in Fig. 5 the feet 7 of the chaplet are extended so as to meet and overlap at the center thereof, one extremity 11 being bent up in such a way as to brace the central portion 6. In each case the chaplet is formed of foraminous sheet metal, preferably tinned plate, and has its central space or chamber 8 open at the ends of the device.

Where the adjacent faces of the matrix and core are both curved, the construction of the improved chaplet will preferably be as shown in Fig. 6, where the central portion 6 and the feet 7 7 are bent in parallel or other curves corresponding to the curvatures of the surfaces of the matrix and core. Otherwise the construction of this form of the chaplet is similar to that illustrated in Fig. 5.

Where but one of the surfaces between which the chaplet is to be arranged is curved, the form of chaplet shown in Fig. 7 may be employed, having one flat and one curved surface.

In some cases the chaplet may be formed from material other than metal plate—as, for example, from wire-cloth of sufficient stiffness bent into the desired form, as shown in Fig. 8, the interstices of the cloth corresponding to the openings 9 of the perforated plate metal.

From the above description it will be seen that the improved chaplet constructed according to our invention is not merely of a simple and inexpensive nature in its construction, so as to effect a practical economy in that direction, but also permits an important economy in the time of the workman in properly setting the cores by reason of there being no particular adjustment or care required in placing the chaplets so long as the core is held from tilting. Further, the metal from which the chaplets are made being quite thin will exert no chilling action upon the molten metal, such as is often the case with anchors as heretofore constructed, such chilling often producing flaws which materially weaken and impair the castings. The construction of the chaplet from perforated metal also insures the escape of the gases from its interior and, further, insures against flaws such as would be caused by the remaining of the gases in the interior of the chaplets. The openings also by receiving the molten metal insure the binding of the chaplet to the cast metal, whereby weakness at the joint between the cast metal and chaplet is avoided and the strength of the casting is made substantially uniform, so that no increased thickness is required or occurs at the chaplets, and the cored castings may be made to fit more closely by the absence of exterior projections such as are required and occur when anchors of the ordinary construction are employed. It will also be apparent from the above description that the improved chaplet or anchor is capable of some modification without material departure from the principles and spirit of our invention in order to better adapt it to the special character of the work to be performed, and for this reason we do not wish to be understood as limiting ourselves to the precise form and arrangement of the device as herein set forth.

Having thus described our invention, we claim—

A molder's chaplet or anchor formed of an elongated piece or sheet of foraminous flat metal having bends formed in it upon straight

lines to produce within the chaplet or anchor a space or chamber having its opposite sides or ends open for the inflow of molten metal and having in its remaining walls closely-adjacent and uniform openings produced by the foramina of the metal sheet and adapted for the exit of gases, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ROBERT B. HASKINS.
GEORGE FISHER.

Witnesses:
HARRY B. VON HAGEL,
JOHN FRANKLIN.