

UNITED STATES PATENT OFFICE

2,651,823

CHAPLET

Harvey F. Hohlfelder, North Perry, Ohio, assignor
to The F. Hohlfelder Company, Cleveland, Ohio,
a corporation of Ohio

Original application January 9, 1951, Serial No.
205,096. Divided and this application February
7, 1952, Serial No. 270,389

3 Claims. (Cl. 22—184)

1

This invention relates to chaplets for use in supporting cores in foundry molds, the chaplets being made from a single piece of wire. The chaplets are two-headed, i. e., they comprise a stem and a head at each end of the stem, the heads lying in planes extending substantially at right angles to the axis of the stem. In the use of the chaplets, one head rests against the mold and the other head supports the core. The construction of the chaplets is such that they have a firm support in the mold cavity and firmly support the core so that they will not shift with respect to the mold cavity.

This application is a division of my copending application Serial No. 205,096, filed January 9, 1951.

In the accompanying drawings which illustrate a preferred embodiment of my chaplet and the method of making the same—

Figure 1 is a perspective view of a chaplet;

Figure 2 is a vertical section through a mold illustrating the manner in which the chaplets may be used;

Figure 3 is a side elevation and Figure 4 is an end elevation of the gripping dies and wire used in carrying out the first step of my method;

Figures 5 and 6 are views similar to Figures 3 and 4, respectively, but illustrating the second step of my method;

Figures 7 and 8 are views similar, respectively, to Figures 3 and 4, but illustrating the third step of my method; and

Figures 9 and 10 are views similar, respectively, to Figures 3 and 4, but illustrating the fourth step of my method.

Referring more particularly to the accompanying drawings, Figure 2 illustrates the use of the chaplets in a molding operation. The mold comprises the usual bottom board 2, drag 3 and cope 4 in which a mold cavity 5 has been formed by ramming sand 6 against a pattern not shown. The core 7 is supported within the mold cavity by the chaplets 8. Molten metal is poured into the mold through a gate 9 leading to the mold cavity.

Referring to the other figures and more particularly to Figure 1, the chaplet according to my invention is made from a single piece of wire. It comprises a centrally located U-shaped portion having a base 10 and two legs 11 and 12 extending at substantially right angles to the axis of the base 10. These legs 11 and 12 are substantially straight and extend radially from the base 10. The straight leg portion 11 is extended and coiled into an open single-turn coil 13 lying in

2

a plane extending substantially at right angles to the axis of the base 10. Similarly, the lower straight leg portion 12 is extended and coiled into an open single-turn coil 14 which lies in a plane extending substantially at right angles to the axis of the base 10. The coils 13 and 14 provide substantial spaces 15 and 16, respectively, so that when the chaplet is in use, molten metal can flow readily into contact with all exposed parts of the chaplet without entrapping gas which would form gas pockets in the casting. The formation of gas pockets in a casting not only is objectionable from the standpoint of producing an unsound casting, but also because it tends to prevent complete fusion of the chaplets. In the preferred form of chaplet which is illustrated, the inside diameter of each of the coils 13 and 14 is approximately twice the length of either of the straight leg portions 11 or 12, thereby insuring adequate spaces 15 and 16 for preventing entrapment of gases in the casting.

The provision of the straight leg portions 11 and 12 between the coils 13 and 14 and the base 10 which forms the stem of the chaplet gives added rigidity to the chaplet, thereby decreasing the tendency of the core to shift in the mold cavity. It also results in firmer seating of the heads 13 and 14 against the core and the mold than could be obtained if the straight leg portions 11 and 12 were omitted.

After the chaplet has been formed from a single piece of round wire into the general shape shown in Figure 1, as hereinafter described, the heads 13 and 14 and the straight leg portions 11 and 12 are flattened by pressing them against the gripping dies used in forming the chaplet. The flattening of these parts of the chaplet increases the seating area which rests against the mold and the core, thereby providing firmer support for the core.

Figures 3–10 illustrate the various steps in making the chaplet shown in Figure 1. The first step of the method is illustrated in Figures 3 and 4. A wire, rod or the like designated by reference numeral 20 is fed between gripping dies 21 and 22 and the dies are brought together to grip the wire within the hole 23 formed by the dies. The wire 20 is then cut off to suitable length for forming a chaplet, the ends 24 and 25 extending respectively beyond the faces 26 and 27 of the dies.

In the next step of the method which is illustrated in Figures 5 and 6, the ends 24 and 25 of the wire are bent at right angles to the portion 28 of the wire which is gripped by the dies. This bending operation produces a substantially U-

3

shaped piece having a base 28 and two straight legs 24 and 25.

In the next step of the method which is illustrated in Figures 7 and 8, the dies and wire are brought adjacent to a twirling or coiling machine not shown and the ends 24 and 25 are coiled into the single loop open coils 13 and 14 shown in Figure 1. This coiling operation is carried out in such manner as to retain the straight leg portions 11 and 12.

In the next step of the method which is illustrated in Figures 9 and 10, the dies and formed wire are brought adjacent a press not shown, which presses the coils 13 and 14 and the straight leg portions 11 and 12 against the die so as to flatten them.

In the next step of the method, not illustrated, the dies are opened and the chaplet is ejected therefrom.

Although I have illustrated and described a method of making a chaplet having the round heads 13 and 14, the method is applicable to the formation of chaplets having square or other shaped heads which can readily be obtained by slight modification of the head forming mechanism.

While the invention is not limited to the use of any particular size of wire, the wires most generally used range from about $\frac{1}{16}$ " to $\frac{1}{4}$ " diameter.

From the above it will be seen that I have provided a two-headed unitary chaplet which can be made in a relatively simple manner. The chaplet provides good seating and support against both the mold and the core and is of such construction, particularly due to the provision of the straight leg portions 11 and 12 and the open spaces 15 and 16, that the chaplets are relatively rigid and strong and in use do not give rise to gas pockets in the casting operation.

The invention is not limited to the preferred embodiment but may be otherwise embodied or practiced within the scope of the following claims.

I claim:

1. A chaplet adapted to be positioned substantially entirely within the metal receiving cavity of a mold and for supporting a core or the like therein, said chaplet comprising a single length

4

of wire, the central portion of which is formed into a connecting stem and the end portions of which are formed into supporting heads, one at each end of the stem, each of said heads consisting of a single turn of the wire and the adjacent end of the connecting stem being positioned in a plane substantially at right angles to the main portion of the stem and being open so as to permit the escape of gas therethrough.

2. A chaplet adapted to be positioned substantially entirely within the metal receiving cavity of a mold and for supporting a core or the like therein, said chaplet comprising a single length of wire, the central portion of which is formed into a connecting stem and the end portions of which are formed into supporting heads, one at each end of the stem, each of said heads consisting of a single turn of the wire and the adjacent end of the connecting stem being positioned in a plane substantially at right angles to the main portion of the stem and being open so as to permit the escape of gas therethrough, the outer face of each head being flat to provide bearing surface for the chaplet in the mold cavity.

3. A chaplet adapted to be positioned substantially entirely within the metal receiving cavity of a mold and for supporting a core or the like therein, said chaplet comprising a single length of wire, the central portion of which is formed into a connecting stem and the end portions of which are formed into supporting heads, one at each end of the stem, each of said heads comprising substantially one coil of the wire integrally connected with the stem by a leg portion extending at substantially right angles to the stem, the heads being positioned in planes substantially at right angles to the stem and being open so as to permit the escape of gas therethrough.

HARVEY F. HOHLFELDER.

References Cited in the file of this patent

UNITED STATES PATENTS		
Number	Name	Date
1,357,388	Eriksen	Nov. 2, 1920
1,563,480	Gibson	Dec. 1, 1925
1,987,048	Brunst	Jan. 9, 1935