Sept. 10, 1935. R. DITTY 2,013,746

CHAPLET

Filed Dec. 29, 1933

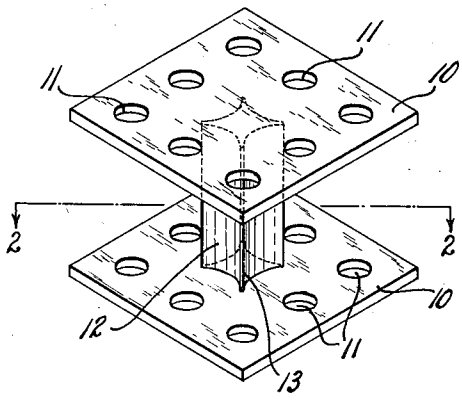


FIG. - 1

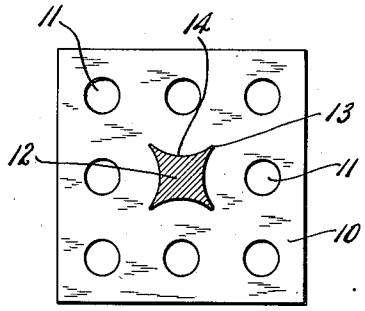


FIG. - 2

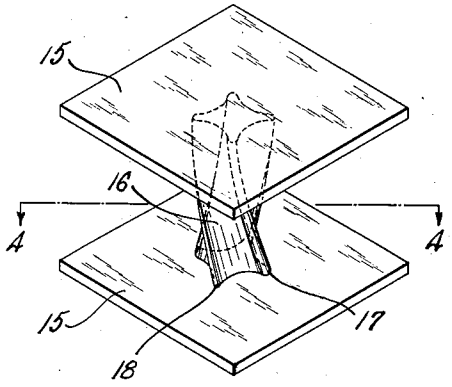


FIG. - 3

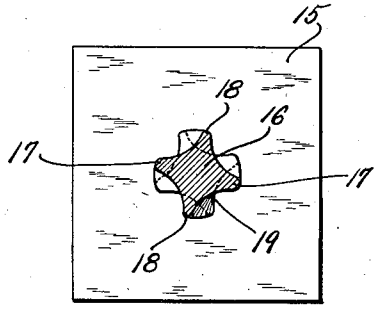


FIG. - 4

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Patented Sept. 10, 1935 2,013,746

UNITED STATES PATENT OFFICE

2,013,746

CHAPLET

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Application December 29, 1933, Serial No. 704,499

1 Claim. (Cl. 22—184)

This invention relates to an improved chaplet for use in molding operations connected with metal founding, and particularly for supporting a core in a mold while metal is being cast.

One object of my invention is to provide an improved chaplet, portions of which will be readily fusible with the metal of the casting.

Another object of my invention is to provide a chaplet which will be firmly anchored in the casting to resist peening operations if such are necessary.

Another object of the invention is to provide a chaplet which will have a strong central shank portion but which will at the same time be readily fused with the metal of the casting substantially throughout the length of the chaplet shank.

Other objects and advantages will be apparent from the accompanying description, taken with the drawing, and the essential features of my invention will be summarized in the claim.

In the drawing Fig. 1 is a perspective view of one form of my improved chaplet having a straight shank; Fig. 2 is a sectional view along the line 2—2 of Fig. 1; Fig. 3 is a modified form of chaplet showing a twisted shank; while Fig. 4 is a sectional view along the line 4—4 of Fig. 3.

In metal founding requiring the use of cores, chaplets are used to support the cores in place in the mold while the metal is cast. The chaplets are constructed of material which will fuse with the metal of the casting so that the chaplet becomes "burnt in" and becomes substantially an integral portion of the casting. When an impervious casting is desired and the conditions during pouring are such that the chaplet is imperfectly fused in place it is usual to resort to peening. This is a hammering of the metal of the chaplet generally longitudinally of the shank to expand the chaplet metal to fill voids between the chaplet and casting. The chaplet must be securely anchored in the casting to resist this peening action.

Various forms of chaplets have been devised both with a view to more uniform fusing of the chaplet in place, and with a view to firmly anchor the chaplet in place if peening is necessary. Many of these chaplets have sacrificed strength to fusibility or else have striven for a firm anchorage at one or more limited portions of the chaplet so as to facilitate peening but with some loss in fusibility.

My improved chaplet attains a satisfactory fusibility throughout the portion of the shank embedded in the metal of the casting, while at the same time retaining strength, firm anchorage and a volume of metal in the chaplet shank well adapted for peening, if such is necessary.

My chaplet comprises in general a suitable head or heads and a shank which in section, at least as to that part embedded in the casting, comprises a relatively large and solid central portion and other portions extending outwardly therefrom in flutes, cusps, ribs or the like, it being desirable that these outwardly extending portions end in easily fusible edges. The shank may be twisted or straight as desired. One advantage of twisting is that it more firmly anchors the shank in the casting when fusion between the chaplet and casting is incomplete and peening becomes necessary. Also leakage is not so easy along a tortuous passage as along a straight one.

The drawing is illustrative only and shows in Figs. 1 and 2 a chaplet having heads 10 provided with perforations 11 such as are more fully illustrated, described and claimed in my copending application, Serial No. 689,799, filed September 18, 1933. The purpose of the perforations 11 is to promote fusion and anchoring of the chaplet head in the casting. The shank 12 is straight and uniform in section throughout its length. The shank is fluted and its section as shown in Fig. 2 is defined by a four-cusped hypocycloid curve or astroid having alternate cusps 13 and concavities 14 about its periphery. The cusps 13 are of a form readily fusible with the metal of the casting.

The modification shown in Figs. 3 and 4 comprises heads 15 which are of the conventional solid type although they might be similar to the heads 10 or any other desired form. The shank 16 is substantially uniform in section throughout its length and is twisted. The section, as best seen in Fig. 4, comprises alternate cusps 17, 18 and reentrant portions 19. This form differs slightly from Figs. 1 and 2 in that cusps 17 are blunt, while cusps 18 are more acute. Both forms are readily fusible in a casting and the twisted shank is very firmly held if peening becomes necessary.

While I show the ribs or outwardly extending cusps along the entire shank, it will be understood that such readily fusible edges might be provided only along that portion of the shank adapted to be embedded in the metal of the casting and yet be within the spirit of my invention. For instance, in a single head chaplet the portion of the shank embedded in sand might be any desired shape.

As pointed out above, some of the advantages of my invention may be realized in a chaplet shank not uniform in section throughout its

length, but uniform for a portion of the length embedded in the casting sufficient to thoroughly bond the chaplet and casting. However, one advantage of the chaplet shanks illustrated is realized only by making them of uniform section throughout. Sections such as I have illustrated may be rolled in bars of any length desired and may be straight or twisted. Thereafter these bars may be cut to suitable length and heads added in any manner suitable, for instance by welding. Chaplets constructed in this manner have the merit of cheapness and ease of construction in addition to the advantages previously described.

What I claim is:

A chaplet having a shank whose section is substantially one bounded by an astroid curve.

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