

(No Model.)

L. C. RODIER.

MEANS FOR SUPPORTING SAND CORES.

No. 302,034.

Patented July 15, 1884.

Fig. 1

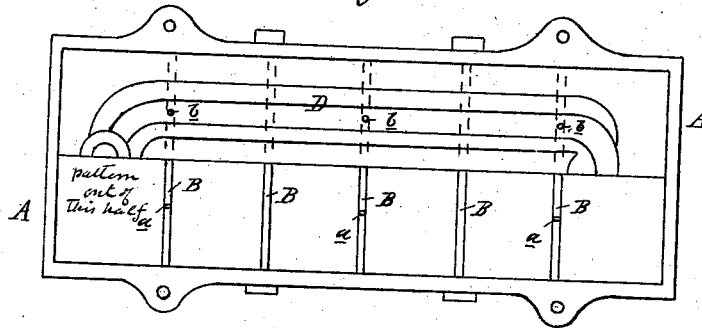


Fig. 2

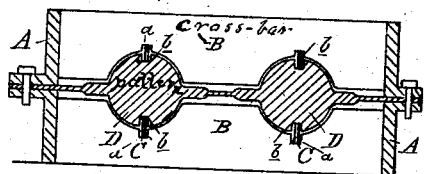


Fig. 3

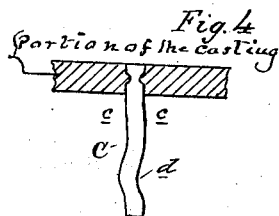
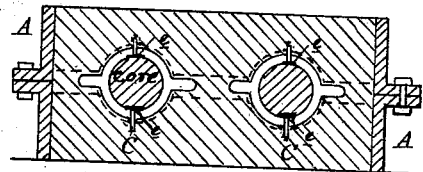


Fig. 4

Portion of the casting

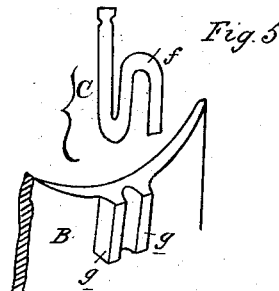


Fig. 5

Attest  
Charles J. Hunt  
A. Barthel

Inventor  
Louis C. Rodier  
By *Thos. S. Sprague* Atty

# UNITED STATES PATENT OFFICE.

LOUIS C. RODIER, OF DETROIT, MICHIGAN.

## MEANS FOR SUPPORTING SAND CORES.

SPECIFICATION forming part of Letters Patent No. 302,034, dated July 15, 1884.

Application filed April 3, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS C. RODIER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Means for Supporting Sand Cores; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in the means for supporting and anchoring dry sand or other cores in molds for casting hollow forms, and in the following specification I have described and shown my invention as applied in casting radiator-tubes, as it is especially in connection with hollow castings of this class that the advantage of my improvement is most apparent. This invention consists in the peculiar construction, arrangement, and combination of parts, as more fully hereinafter set forth and claimed.

Figure 1 is a plan view of one part of a flask, showing one half of the pattern of a double-branch radiator-tube laid in, while the other half is exposed to show the cross-partitions of the flask. Fig. 2 is a vertical cross-section showing the pattern in place, ready for the molder to ram up his sand. Fig. 3 is a like view, the mold having been formed and the pattern removed, showing the cores anchored in place. Fig. 4 is a detached enlarged view of the anchoring pin or chaplet. Fig. 5 shows a modified chaplet used in connection with a modified construction of flask.

In the accompanying drawings, which form a part of this specification, A represents the parts of a two-part flask, provided with the usual cross-bars, B. In the inner edges of these bars in both parts of the flask, and corresponding to the center line of the pattern D, are cut or formed transverse recesses or slots *a* to receive the foot of the chaplet C. Holes *b* are formed in the pattern D, which, when the pattern is in place in the flask, are in vertical line with the slots *a* in the cross-bars. These holes are of proper size to receive the head of the chaplets. The chaplets themselves are preferably made of wire of even length, and are constructed as shown in Fig. 4, wherein *c* shows indentations formed near

the head of the chaplet, while *d* shows the bend, nick, or other irregularity formed near the foot of the chaplet. In practice, after the pattern is secured in the flask, the molder, having his chaplets ready, inserts the head thereof from below into the hole *b* in the pattern, and then by a radial movement carries the foot into the recesses *a* in the cross-bars, and after this is done the flask is rammed up in the usual way of ramming up a two-part flask. In the drawings there are shown six chaplets for each side of the pattern, which are supported in every alternate cross-bar. After the molding has been performed and the pattern removed the core is laid in, and small plates *e*, of tin or other suitable metal, are laid upon the upper side of the core (if not already molded in the core) coincident to the chaplets, so that when the cope is in place the chaplets in the cope will rest against those plates, so that when the metal is poured through the usual sprues the cores are firmly held in place by the chaplets, the thin plates preventing them, under any circumstances, from working into the core, thereby preserving the relative position of the latter and insuring an equal thickness in the walls of the casting. After the casting is taken out, the longer end of the chaplets will be projecting from it, when they may be cut off in line with the outer face of the wall of the casting. The nicking of the chaplets retains their heads so firmly within the casting that when the projecting ends are removed no holes can be made in the casting by the accidental removal of the whole chaplet. The opposite end of the pin is curved slightly, or otherwise formed irregularly, for preventing the same from dropping out of the sand.

It will be seen that in my method of supporting the cores of radiator-tubes and similar articles, the placing of the chaplets is done before the mold is finished, and as the chaplets, slots *a*, and holes *b* can easily be made uniform, it is clear that all gaging is avoided and quantity casting by my method saves a great deal of labor, and necessarily produces a greater uniformity of work.

The object of the slots *a* in the cross-bars is threefold—first, to give a safe and uniform footing to the chaplets; secondly, to steady the chaplets sidewise, so that in turn they are able

to steady the cores, which need such steadying, as the core-prints will only hold it against lateral displacement; and, thirdly, admit of a sufficiently long chaplet to be easily handled by the molder. The holes *b* in the pattern, which receive the head of the chaplets, may be preferably formed by a ferrule or bushing secured in the pattern, which prevents the latter from getting injured by long use and incidental cleaning of holes.

In Fig. 5 I show a modification of my chaplet made with a double bend, so as to form the hook *f*. In practice, this chaplet is simply saddled over the cross-bars, which must be provided with double pins *g* at the proper places to steady these chaplets, when necessary, by the absence of proper core-prints to steady the core or otherwise.

I am aware that chaplets have been heretofore made with a nicked head and a twisted shank, and make no claim to such construction, as I deem my invention as essentially different therefrom and an improvement thereon, for to form a bend a single blow of a hammer is sufficient, whereas where the shank is twisted complicated machinery is required to form the same, hence it will be seen that my chaplets are much more easily and cheaply made, and are as efficient as those with a twisted shank. Considering the fact that these are used but once, this is a great desideratum.

What I claim as my invention is—

1. In combination with a molder's flask, and as a means for steadying and supporting the core-sustaining chaplets, the cross-bars B

and pins *g*, substantially as shown and described.

2. In combination with the cross-bars of a molder's flask, and as a means for supporting the cores of the hollow molds, a chaplet provided with a double bend constructed to straddle one of said bars, substantially as described.

3. As an improved article of manufacture, a chaplet having a nicked head and a double bend near its foot, substantially as shown and described.

4. In combination with the cross-bars B, provided with pins *g*, substantially as shown and described, of a chaplet provided with a nicked head and a double bend near its foot, substantially as and for the purpose hereinbefore set forth.

5. The combination of the nicked chaplets with patterns provided with suitable holes, and with cross-bars provided with means, as described, for steadying such chaplets, substantially as set forth.

6. As a means for anchoring cores for the manufacture of hollow castings, the nicked chaplets C and the small metallic plates *e*, in combination with the cross-bars of the flask provided with means for steadying the chaplets, and the holes *b* in the pattern, substantially as and for the purposes described.

LOUIS C. RODIER.

Witnesses:

H. S. SPRAGUE,

CHARLES J. HUNT.