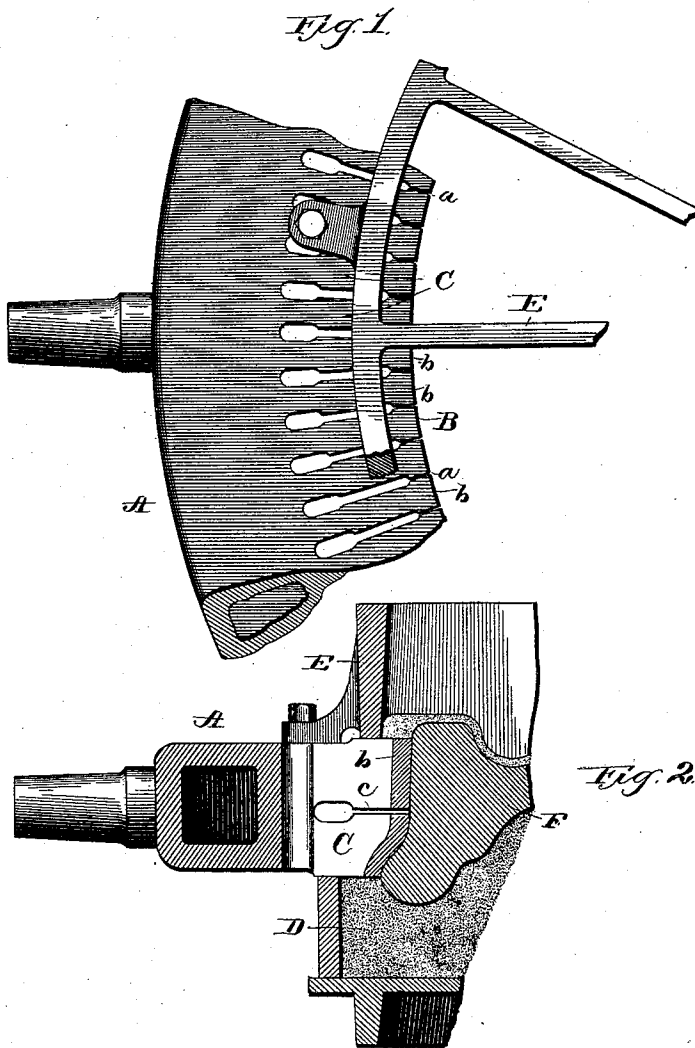


(No Model.)

T. A. GRIFFIN.
SECTIONAL CHILL.

No. 489,474.

Patented Jan. 10, 1893.



Witnesses
Wm. M. Rhem.
E. Wurdeman.

Inventor.
Thomas A. Griffin
By Raymond & Veeder
His Attorneys

UNITED STATES PATENT OFFICE.

THOMAS A. GRIFFIN, OF CHICAGO, ILLINOIS.

SECTIONAL CHILL.

SPECIFICATION forming part of Letters Patent No. 489,474, dated January 10, 1893.

Application filed July 18, 1892. Serial No. 440,417. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. GRIFFIN, of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Sectional Chills, of which the following is a specification.

My invention relates to improvements in that class of chills for making castings in which the chilling surface is divided up into sections, the spaces between the sections affording room for the expansion thereof under the influence of the molten metal, and my improvement relates more especially to chills for casting circular objects, such as car wheels, in which the face is divided into sections whereby expansion of the sections is permitted as aforesaid, and in addition the expansion of the webs or arms supporting the sections of the chilling face results in a radical inward movement of the sections, whereby a contraction of the diameter of the chill is produced, the chills being designated, therefore, as "contracting."

I am aware that it is not new or patentable broadly to construct chills in sections, for chills have heretofore been made embodying as features of their construction a continuous outer ring and an inner ring divided into sections, the said sections being connected to the outer rings by webs or fingers.

My invention is concerned with certain improvements on the general class of chills referred to, as will hereinafter appear, and is applicable to any contracting chill of that class.

In the accompanying drawings Figure 1 represents a segment of a sectional chill as viewed from above only a portion of the chilling ring being shown as the remainder is substantially like it. Fig. 2 is a vertical section, showing the chill in position in a mold.

In pouring car wheels and other castings which are made up of two principal parts, a circumferential ring and a central plate or web, the iron which first enters the mold runs out to fill the lower edge of the ring and rises rapidly until the level of the central plate or web is reached when the rise is comparatively slow until the central portion has been filled, the iron then rising rapidly to the top of the mold. In sectional chills as heretofore con-

structed, there has been no provision for permitting the expansion of the lower part of the chill section after the iron was poured in contact therewith and before the molten metal came in contact with the upper portion of the chill.

My invention furnishes a provision by which the lower part of a contracting chill may expand and contract independently of the upper part, the expansion thus permitted resulting in the case of car wheels in producing a better chill in the flange and throat thereof.

A is the outer ring of the chill.

B is the sectional inner ring, and C designates the webs or arms joining the outer and inner rings.

D is the drag and E is the cope of the mold. The section *b, b* of the inner face are separated as usual by vertical divisions *a*, and in addition thereto are divided horizontally by a division *c* extending entirely around the inner face of the chill and back into the webs C, as seen in Fig. 2. The said division *c* is preferably located at or near the level of the central web portion F of the car wheel, a section of which appears in Fig. 2. The result of the formation of the division *c* extending around the chill horizontally is to allow the lower portion of the chill to expand independently of the upper portion, the irregular strain upon the chill and the imperfection of the resulting casting otherwise arising from the impossibility of pouring the whole of the metal into the mold instantaneously being thereby obviated. The division *c* as well as the vertical divisions *a*, when made as small as practicable, nevertheless leave irregular ridges or projections upon the face of the wheel which must be removed by turning or grinding, but as this process is necessary in connection with the use of the ordinary contracting chill, the presence of an additional ridge is no objection to the use of the horizontal division *c*, as the ridge left thereby is removed by the same process and at the same time as the ridges left by the vertical divisions *a*.

I do not care to confine myself to one horizontal separation nor the exact location of the same. There may be two or more on the face of the chill if desired.

I am aware that chills have been heretofore

devised which are composed of several rings
superposed and clamped together and I do not
claim such as my invention. But I am not
aware that any chill composed of an outer
5 ring, webs projecting inward from the outer
ring and rigidly supported thereby, but inde-
pendent of each other, and carrying at their
inner ends the sections of the inner ring di-
vided both vertically and horizontally, has
10 been devised before my invention thereof.

I claim:

The combination in a sectional chill of an

outer continuous ring and an inner ring sep-
arated into sections by both vertical and hori-
zontal divisions, and webs extending inwardly 15
from the outer ring and rigidly supported
thereby independent of each other and sup-
porting the sections of the inner ring inde-
pendently of each other.

THOMAS A. GRIFFIN.

Witnesses:

TODD MASON,
V. HUGO.