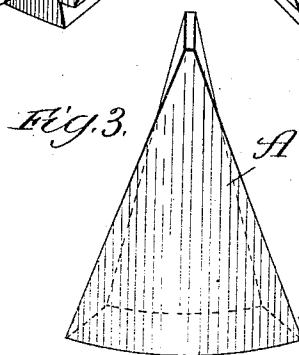
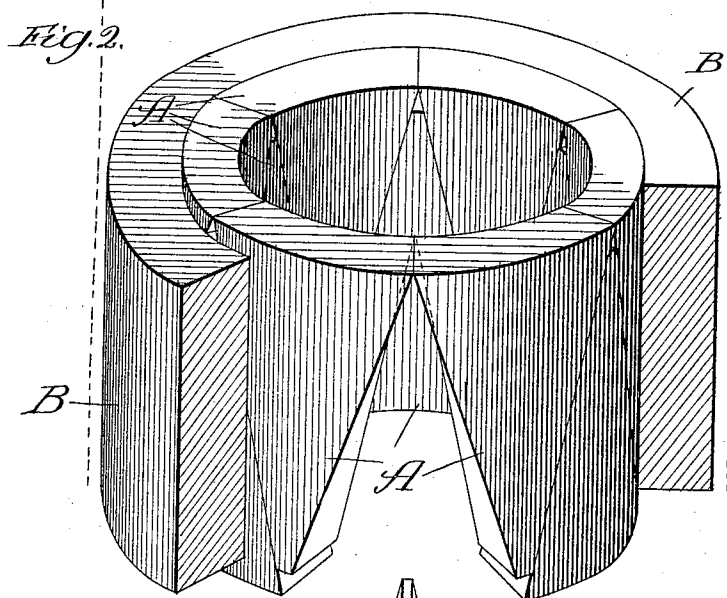
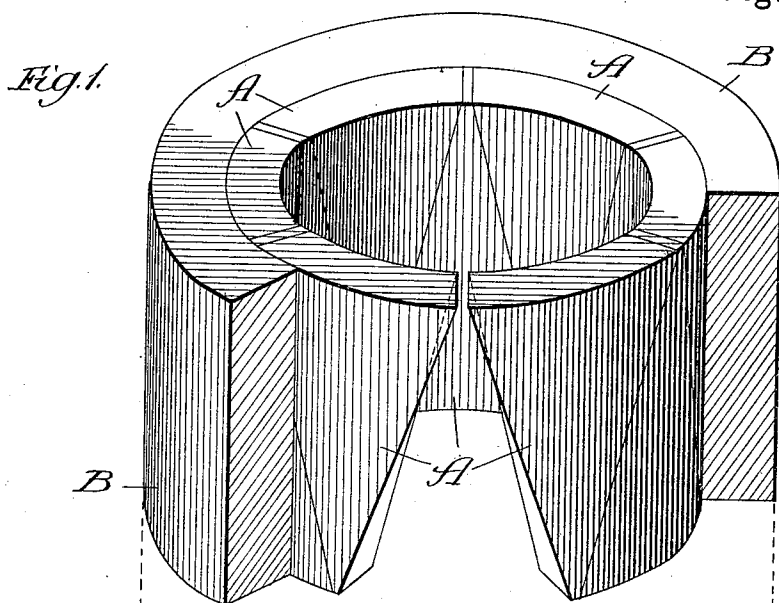


(No Model.)

W. A. SPRING.
CHILL RING.

No. 479,958.

Patented Aug. 2, 1892.



Witnesses:
Chas. E. Gaylord.
Clifford White.

Inventor:
William A. Spring,
By Ranning & Ranning, Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM A. SPRING, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GATES IRON WORKS, OF SAME PLACE.

CHILL-RING.

SPECIFICATION forming part of Letters Patent No. 479,958, dated August 2, 1892.

Application filed November 20, 1891. Serial No. 412,506. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. SPRING, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Chill-Rings, of which the following is a specification.

The object of my invention is to make a chilling-ring to chill the interior of castings, which is capable of diminishing in diameter as the casting contracts on it in cooling; and my invention consists in the features and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a portion of a ring-casting in its uncontracted condition with my improved chilling-ring in place. Fig. 2 is a perspective view of the same after the casting has contracted, and Fig. 3 is a perspective view of one of the sections of my chilling-ring.

As is well known, it is very difficult, if not impracticable, to cast metals around a ring of metal or other material to chill the interior of the casting. Owing to the contraction that takes place as the casting cools and the inability of the chilling-ring to correspondingly contract, the casting will often be cracked and broken. It is to overcome this difficulty and to make a chilling-ring that will adapt itself to the contraction of the metal of the casting by correspondingly diminishing in diameter that I have made my invention.

In making my improved chilling-ring I make it of substantially triangular pointed sections A, with the point of each section arranged at the butt of the adjacent section. The ring is thus composed of a number of pointed sections cut through from end to end of the ring. The metal composing the casting B in a molten condition is flowed around the chilling-ring as the same is arranged in the molds and

the interior of the casting is chilled by contact with the chilling-ring. This causes the casting to contract upon the chilling-ring and to exert an external pressure upon it. Under this external pressure the sections of the chilling-ring move or slide endwise away from each other to a sufficient extent to accommodate the diameter of the ring to the decreasing size of the casting. The ring thus increases in length and decreases in diameter under pressure from the contracting casting. It may thus be considered as a compressible or contractible ring under external pressure. I have found from experience that no breaking or cracking of the casting can take place when chilled upon a chilling-ring comprising a number of pointed sections with their points alternating from end to end of the ring, so that the sections may slide or move away from each other to diminish the diameter of the ring.

What I regard as new, and desire to secure by Letters Patent, is—

1. For chilling the interior of castings, a chilling-ring comprising a number of pointed sections with the point of one section at the butt of the adjacent section, substantially as described.

2. For chilling the interior of castings, a chilling-ring comprising a number of pointed sections having abutting edges radial to the axis of the ring arranged point to butt and movable endwise from each other under external pressure to diminish the diameter of the ring as the casting contracts on it, substantially as described.

WILLIAM A. SPRING.

Witnesses:

EPHRAIM BANNING,
SAMUEL E. HIBBEN.