(No Model.)

W. TUTTLE.

CHILL FOR CHILLING METAL.

No. 265,646. Patented Oct. 10, 1882.

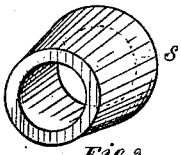


Fig. 2

Fig. 1

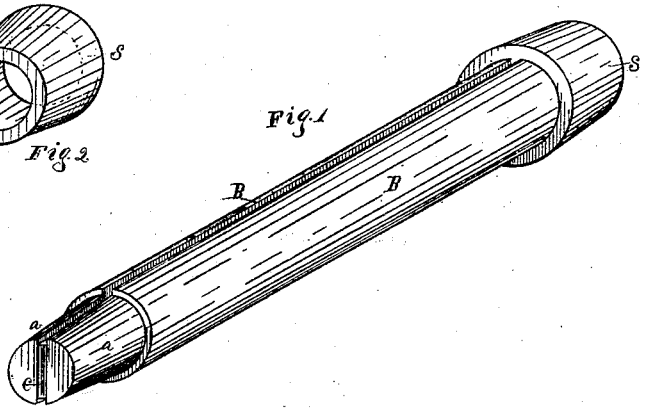
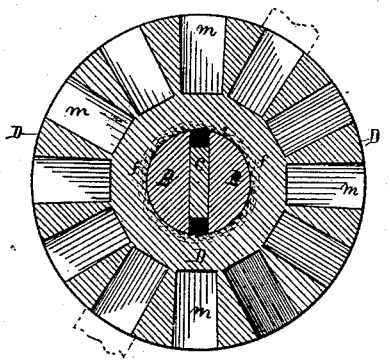


Fig. 3



Witnesses.

John C. Perkins

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WILLIAM TUTTLE, OF DOWAGIAC, MICHIGAN.

CHILL FOR CHILLING METAL.

SPECIFICATION forming part of Letters Patent No. 265,646, dated October 10, 1882.

Application filed June 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM TUTTLE, of the city of Dowagiac, county of Cass, and State of Michigan, have invented a certain Improvement in Chills for Forming and Chilling the Lining of Holes in the Process of Casting, of which the following is a specification.

This invention relates to that class of chills used for forming and chilling holes through metal in the process of casting in molds, forming through the castings holes having the same diametrical proportions, and hardening the wearing parts, especially those through the hubs of wheels, whereby they are made more durable and cheaper than in the usual way.

In order to aid others skilled in the art to which my invention belongs to make and use it, I will proceed to describe its construction and operation with reference to the several drawings, as lettered respectively, in which—

Figure 1 is a perspective view of my chill, having one of the thimbles *s* removed. Fig. 2 is a perspective view of one of the metal thimbles *s* detached from the convexed plates B B of the chill. Fig. 3 is a cross sectional view of a wheel-hub and the chill.

The longitudinal openings each side of the wood centers C in Fig. 1 are filled with molding-sand, as clearly shown in Fig. 3 by the dark shading at each edge of the wood center C.

My chill consists proper of three parts, two of metal and one of wood. The wooden part is placed between the two outer or metal parts, as shown in Figs. 1 and 3. The parts of the chill are flat on their joining sides, being circular on their exterior. When the strip of wood C is inserted between the metal parts B B the circle or diameter of the parts should equal that of the size of hole desired through the wheel-hub or casting. The wood used is a thin strip about one-fourth of an inch thick, being of the same length as the outer parts, B B, in width being slightly narrower than through the diameter of the plates B B, and is placed between the iron plates, leaving grooves on two sides, into which common molding-sand is pressed, thus preventing the molten metal from flowing in, and also preventing burning up the wood center too rapidly. The ends of the metal parts B B are slightly tapering, and are also shouldered over the tapered portions, and against the shoulders I slip two thimbles, *s s*. These thimbles are for two purposes. They bind the outer parts of the chill to the wood or central part, and, when fully pressed over, limit the diameter of the chill. Said thimbles are of metal, and, being thick, they also chill the extreme ends of the wheel-hub as the metal flows against their inner faces, and, being fixed onto the chill at a proper distance from each other by means of the shouldered ends *a a*, the proper length of hub is obtained, thus chilling them and making them of one length.

The object of the wooden center in my chill is for the following purpose: The metal, after being poured into the mold, contracts when it begins to cool, and if a solid chill were used it would be impossible to remove it from the casting; but in my invention I have a thin wooden center, so that as soon as the metal in casting is poured into the mold the metal plates B B become hot, when the wood center C takes fire and is entirely burned up, and as soon as the center is destroyed the metal parts of my chill drop toward each other, when the thimbles *s s* become loosened and the parts B B will readily drop out of the casting, leaving a smooth and chilled surface. The thimbles have a tapering hole through them to fit over the tapering ends *a a* and against the shoulders. The thimbles are made tapering on their exterior, for the purpose of more readily entering the core print when placed in the mold.

Having thus described my invention in the most exact terms that I can give, what I claim as new, and desire to secure by Letters Patent, is—

1. In a chill, the combination of the convexed exterior plates of metal, B B, with the perishable or wood center, as and for the purposes specified.

2. In combination, the convexed metal plates having sloping shouldered ends *a a* and wood center, the thimbles *s s*, and sand fillings, as and for the purposes herein specified.

WILLIAM TUTTLE.

Witnesses:
ROSCOE B. WHEELER,
F. J. ATWELL.