(No Model.)

C. A. TREAT.

CHILL FOR CASTING CAR WHEELS.

No. 481,442. Patented Aug. 23, 1892.

Fig. 1.

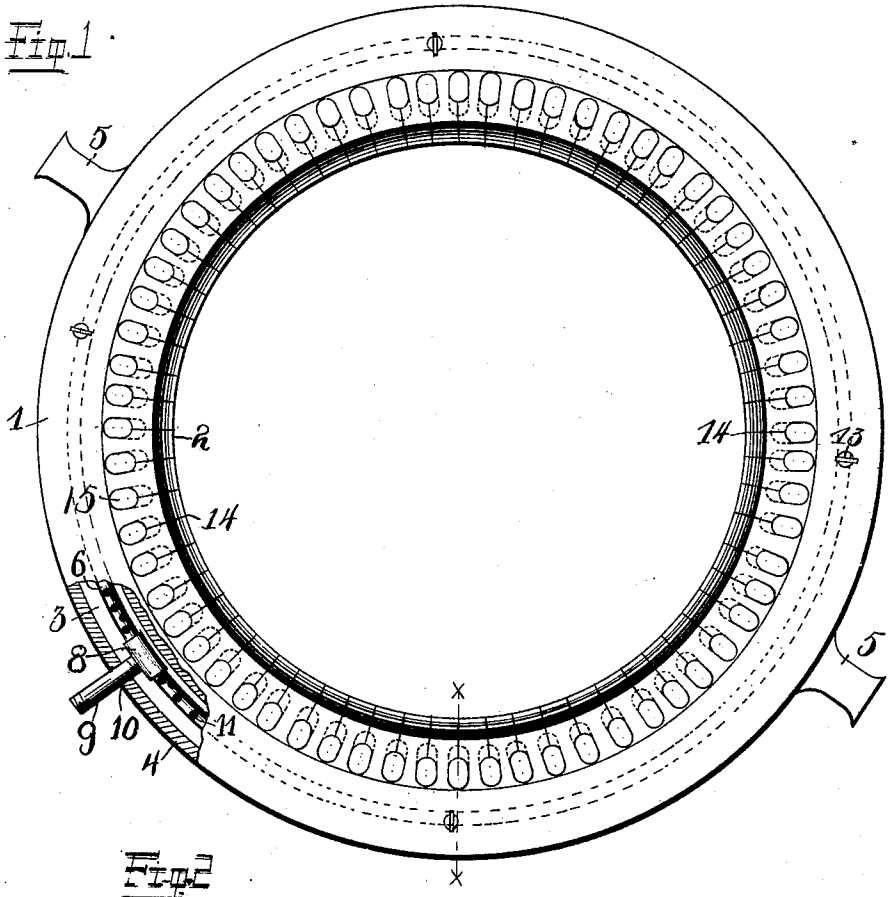
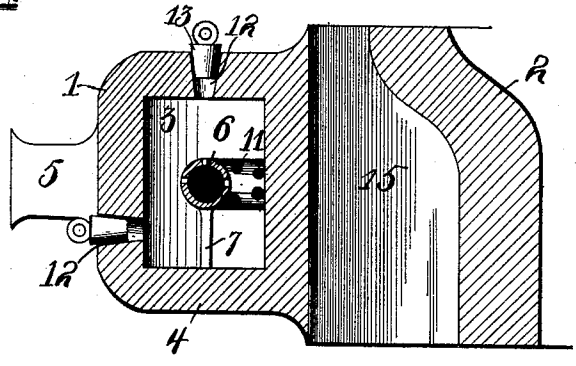


Fig. 2



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UNITED STATES PATENT OFFICE.

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CHILL FOR CASTING CAR-WHEELS.

SPECIFICATION forming part of Letters Patent No. 481,442, dated August 23, 1892.

Application filed February 1, 1892. Serial No. 419,911. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS A. TREAT, of the city of Hannibal, Marion county, and State of Missouri, have invented certain new and useful Improvements in Chills and Methods of Contracting and Ventilating the Same for Casting Car-Wheels, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in chills and the method of contracting and ventilating the same for casting car-wheels, &c.; and it consists in the novel arrangement and combination of parts, as will be more fully hereinafter described, and designated in the claims.

In the drawings, Figure 1 is a bottom plan view of a chill constructed according to my invention; and Fig. 2 is a vertical cross-section taken on the line *x x* of Fig. 1, but somewhat enlarged in order to show more clearly the interior construction of the chill.

My invention is more especially adapted for contracting and ventilating chills, and consists in supplying compressed air to the interior of the same in the manner as hereinafter more fully described in detail.

Heretofore it has been the practice to cool the chills by forcing water around and through the same; but such does not prove to be successful for the reason that certain portions of the chill will become cold before the remaining portions would receive the same temperature. By the employment of compressed air for this purpose the entire chill is cooled at an instant, and thereby produces better results.

The illustration shows a chill which is employed in casting car-wheels; but my invention is not only applicable to said chill but those of other constructions, and therefore I do not wish to limit myself in this particular.

Referring to the drawings, 1 represents a circular chill, the inner surface 2 of which forms the tread of the wheel to be cast, giving the proper shape to the same and the proper dimensions of the said wheel.

3 represents an annular space which is formed around the outside of the chill, and is formed by the walls 4 in casting said chill. Oppositely located and formed with the said chill upon the sides of the same are two projecting handles 5 for manipulating the chill and moving the same from place to place. The pipe which is located within the annular space 3 is circular in cross-section, as shown, but may be of any other shape and dimensions without departing from the nature of my invention. In practice I may desire to cast said pipes and chill and make the proper connections to said pipe from the outside in any mechanical manner; but, as shown in the drawings, the pipes form a separate element, and are properly placed within the passage 3 after the chill is constructed.

6 represents a circular pipe which is centrally located within the annular space 3 and is supported in said position by means of supports 7. The ends of the said pipe are united by means of a three-way coupling 8, the said ends screwed or otherwise secured within two of the openings formed in the said coupling and the remaining opening adapted to receive a pipe 9 for supplying air to said pipe 6 from any suitable source. The pipes 9 pass through a suitable opening 10, formed in the side of the chill, by means of which the air can be supplied to the pipes 6.

The pipe 6 is provided with any number of openings 11 throughout its length, and are arranged in any manner, and which may be of any number to answer the purpose, through which openings the compressed air is allowed to escape from the pipe 6 and pass into the space 3 for cooling the chill, as heretofore described.

Any one of the walls 4 of the chill is provided with conical-shaped openings 12 for allowing the air to escape that is contained in the space 3, or two of the walls may be provided with openings, this being only a matter of preference.

The construction as shown in Fig. 2 of the drawings represents openings adapted to receive conical-shaped lugs 13, which may be manipulated by the hand and adapted to close the openings 12, when desired, for holding the said air within the space 3 or for closing said openings when the chill is not in

use for preventing dirt or other accumulations from gaining access within the passage 3.

The interior surface of the chill, or that portion which forms the shape of the tread of the wheel, is provided with a series of radially-arranged slits 14, leading from said edge to suitable openings 15, which slits allow for the expansion of the metal when the said metal is in its molten or plastic state.

The chill, as before described, is placed in the mold in the usual manner and the molten metal passed within the said mold in a manner well known. The said metal on coming in contact with the surface 2 of the chill expands the same; but when the air is forced into said chill for cooling the same the molten metal will contract and the tread of the wheel so cast become chilled.

For heating and expanding the chill previous to filling the same with molten metal I first pass carbonated air through the pipe 6 and allow the same to escape through the openings formed in the same, and then ignite the said air, after which the compressed air is allowed to pass through said pipe and into the annular space for contracting the said chill, for the purpose as heretofore described.

Having fully described my invention, what I claim is—

1. The herein-described method of contracting and ventilating chills, consisting in passing compressed air to the interior of the chill and allowing the same to escape through suitable openings formed in the pipe for conveying the same.

2. A contracting and ventilating chill consisting of an annular space 3, a pipe 11, located within the same and held by means of supports 7, a coupling 8 for uniting the ends of the said pipe, a pipe 9, leading from a suitable source of air-supply and also attached to the said coupling, conical-shaped openings 12, formed in the walls 4 of the chill for allowing the air to escape from the same, and plugs 13 for closing said opening for either holding the air within said space 3 or preventing dirt or other accumulation from gaining access to the said space, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CORNELIUS A. TREAT.

Witnesses:
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