8668X

J. Harley,

Casting Chilled Rolls, &c.

Patented Mar. 3, 1835.

Fig. 1.

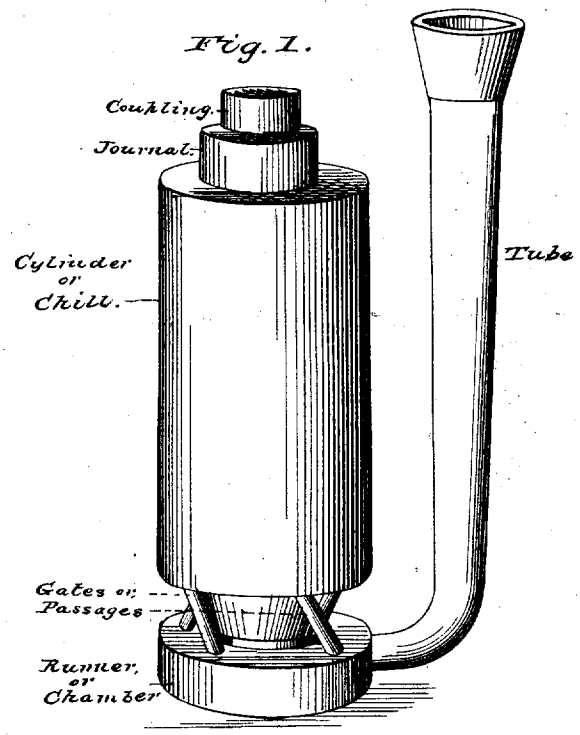


Fig. 2.

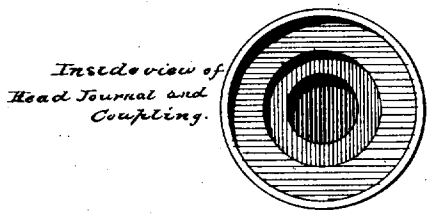


Fig. 3.

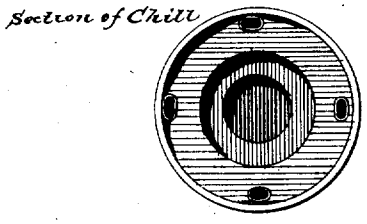


Fig. 4.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

Mar. 3. 1835 — 6668 X 29

James Harley Pittsburg Pennsylvania

Letters Patent

The schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said James Harley himself of his improvement in the mode of casting chilled Rollers and other metallic Cylinders and Cones.

To all to whom these presents shall come. Be it known that I James Harley of Pittsburg in the County of Allegheny and State of Pennsylvania have invented a new and useful improvement in the mode of casting Chilled Rollers and other Metallic Cylinders & Cones & that the following is a full and exact description of the construction and operation of said machine or improvement as invented or improved by me

In order to show the object of my improvement I state the usual method now practiced in casting chilled Rollers as follows. The mould in which they are cast consists of a main central portion formed by a hollow metallic Cylinder and the two ends called journals or couplings which are moulded in sand. Now if the metal be poured into such a mould in the usual manner that is through a tube descending to its lower extremity. The motion thus communicated to it as it rises in the mould tends to throw the sand drops sticking to it towards the external part of the Roller and thereby occasions cracks flaws and other imperfections on its surface. Now for in order to obviate this injurious tendency it is the custom to stir the fluid metal with a rod so as to give to it a rotary motion by thus stirring in order to bring the light substances to the centre. But this operation of stirring is dangerous and does not effect its object with certainty. My method of construction is to insert a series of pipes (which may be called gates) at openings into or near the bottom of the main chilled Cylinder or near the inner surface of the said Cylinder and the line of direction of said pipes or gates is not to be

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that of a perpendicular to said Bottom or inner surface, but that of an oblique or slanting line usually about equal to thirty degrees that is approaching the direction of a tangent to the cylinder. Beneath these openings by which the pipes enter the main chill cylinder is to be formed a circular chamber with as many openings as there are pipes to communicate with the openings into the cylinder and the pipes are to connect this chamber with the cylinder in the oblique or slanting direction above described. It is also advantageous to have this circular chamber closed by a partition across it on one side of the opening in the circumference left for the insertion of the descending tube by which the fluid metal is to be poured in. This is the construction of my improvement. The manner of using it is as follows. The melted metal is poured in at the descending tube by which it arrives at the opening at the bottom of this tube, leading on to the circular chamber, here the metal enters and on one side being arrested by the partition closing the chamber at that side of this opening. The stream or course of the metal will be driven round and consequently continued round. The partition is to be so placed as to give the course of the stream in the same direction round as that to which the pipes or gates lean. The metal flowing up these inclined tubes or pipes acquires a rotary motion on entering the main cylinder which is the object I wish to attain, thereby preventing the necessity of stirring with a rod, and this rotary motion is necessary in order to bring the light substances to the centre and throw the heaviest and best metal to the circumference. What I claim as my own invention and not before or previously known in the above described machine or improvement is that the tube or tubes or passages called gates through which the metal is to be conveyed into the mould shall not enter the mould perpendicularly at the bottom but slanting or in a direction approaching to a tangent of the cylinder or if the Gates enter the mould horizontally, or nearly so that they shall not enter in the direction of the axis of the cylinder but in a tangent

form or enclosing tenons at right angles to the cylinder
In testimony that the above is a full and exact description
of the construction and application of my improvement or machine
as invented or improved by me I have hereunto set my hand
this 17th day of February in the year of our Lord Eighteen hun-
dred and thirty-five

Witnesses: David M Clelland
Enoch Wigley

Wm Harley

(Drawing)

Ex C.
C.H.W.

816 wds