

(No Model.)

J. M. CASE.

APPARATUS FOR CASTING CHILLED ROLLS.

No. 261,999.

Patented Aug. 1, 1882.

Fig 1

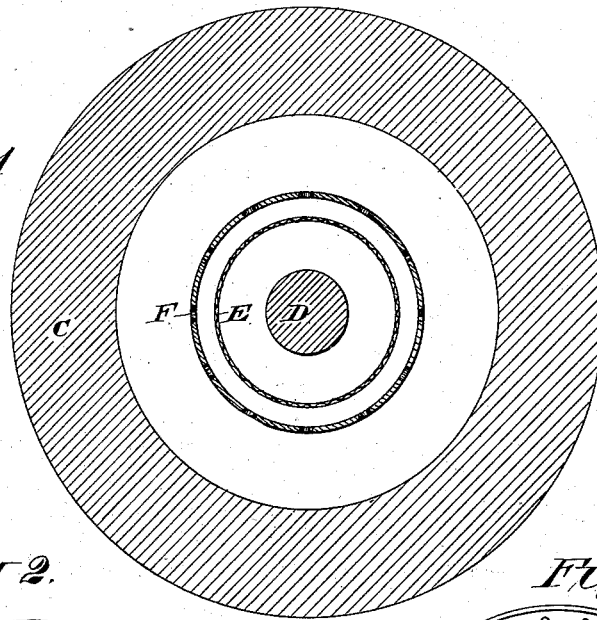


Fig 2.

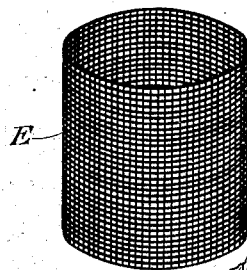


Fig 3.

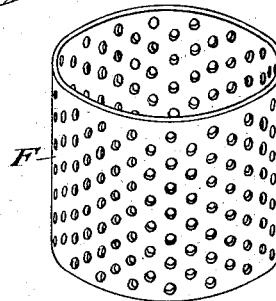
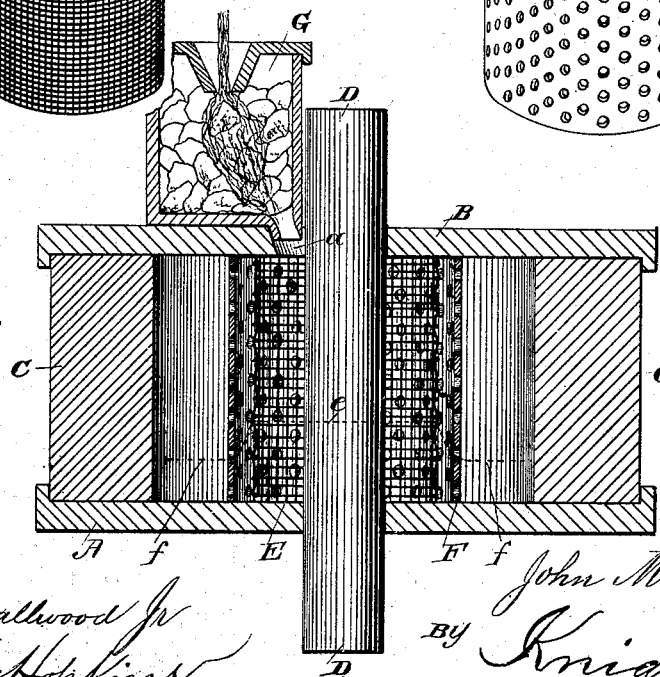


Fig 4.



Attest:

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR CASTING CHILLED ROLLS.

SPECIFICATION forming part of Letters Patent No. 261,999, dated August 1, 1882.

Application filed November 25, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. CASE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented Improvements in Apparatus for Casting Chilled Rolls and other Articles, of which the following is a specification.

My invention consists in placing one or more strainers (preferably two or more, one within another) within the mold-cavity between the gate and chill or other part or parts where a smooth and uniform surface is desired in the casting, so that dross or impurities will be arrested, and will, with the strainer or strainers, be incorporated in the body of the casting away from the smooth surface thereof.

The invention further consists in the combination, with a mold, of a preliminary straining device consisting of an external receptacle charged with broken stone or other suitable material, and one or more internal strainers, the latter located within the mold-cavity and becoming incorporated with the casting.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a top or end view of the mold and two strainers within it. Figs. 2 and 3 are perspective views of two of the strainers, which may be used one within the other. Fig. 4 is a vertical section of the apparatus.

I have here illustrated the application of the invention to the casting of chilled rolls; but it is not restricted to this particular use.

In the drawings, A represents the base, B the cope, and C the cylindrical chill, of the mold.

D represents a central shaft, on which the roller is to be cast. A hole or space for pouring is left at *a*, between this shaft and the margin of the opening of the cope.

E F represent baskets or strainers placed concentrically one within the other in the cavity of the mold in such position that the molten metal poured in at *a* will fall on the inside of the inner basket or strainer, E. The inner basket, E, (represented in the detached view, Fig. 2,) is here shown as of wire-gauze, and the outer basket, F, (represented in detached view,

Fig. 3,) as of perforated metal; but both of them may be of either of these materials, or of any preferred material or construction which will effect the object herein sought.

As an adjunct to my invention I also employ a body of broken stone or like material as a preliminary straining medium, through which the molten metal is passed before entering the mold or reaching the cylindrical strainers herein shown and described, which are located within the mold-cavity, so as to be incorporated with the casting. This preliminary straining device is shown at G in Fig. 4.

The baskets may be two or more in number; or in some cases a single basket or strainer may be used.

The operation is as follows: The molten metal, being poured in at *a*, will rise within the inner cylinder, E, as indicated by the dotted line *e*, and gradually flow through the perforations of said cylinder to the space between the two cylinders, and thence through the outer cylinder, F, where it will take a lower level, as indicated by the dotted line *f*, owing to the obstruction experienced in passing through the strainers. The pouring is continued until the mold is full, slag, dross, and other impurities being caught by the strainers and retained within the central part of the roll or other casting, while only pure metal reaches the chill cylinder C. The heat of the molten iron will eventually melt the baskets or disintegrate them, so that their material becomes incorporated with the casting; but they remain intact long enough to effect the straining of the metal, as explained.

If an inner surface is to be chilled, the metal is, of course, poured on the outside of the baskets or strainers, instead of on the inside, as above described.

If both an inner and an outer surface are to be chilled, the metal is poured between two concentric baskets, so that dross, slag, and impurities will be intercepted by each and prevented from approaching either surface.

The same explanation applies to casting articles in other than chill-molds, where it is especially desirable to exclude impurities from the surface or surfaces of the casting.

I am aware that various devices have before

been employed to strain and clear the molten metal from slag and dross while it is poured into the mold, and that it is common to pass the molten metal through a preliminary chamber, within which slag and impurities will rise to the surface, and from the bottom of which the pure and heavier metal will flow into the cavity of the mold.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The combination, with a mold for metals, of one or more strainers placed within the mold-cavity between the gate and the parts of the cavity where smooth or uniform surface or surfaces of the casting are desired, thereby permitting the passage of the strained metal to such parts and the incorporation of the strainer in the casting, substantially as shown and described.

2. The combination, with a mold for metals, of one or more strainers placed within the mold-cavity, and a preliminary straining device, G, on the exterior of the mold, consisting of a receptacle containing a body of broken stone or like material, through which the metal is poured, substantially as herein shown and described.

3. The combination, with the mold A B C, of any desirable number of baskets or strainers, E F, placed one within another within the mold to intercept slag, dross, or impurities in the molten metal and prevent their approach to the surface of the casting.

JOHN M. CASE.

Witnesses:

CHAS. BEATLEY,
OTWAY WATSON.