(No Model.)

J. FORBES.

CAR WHEEL MOLD.

No. 246,114. Patented Aug. 23, 1881.

Fig. 1.

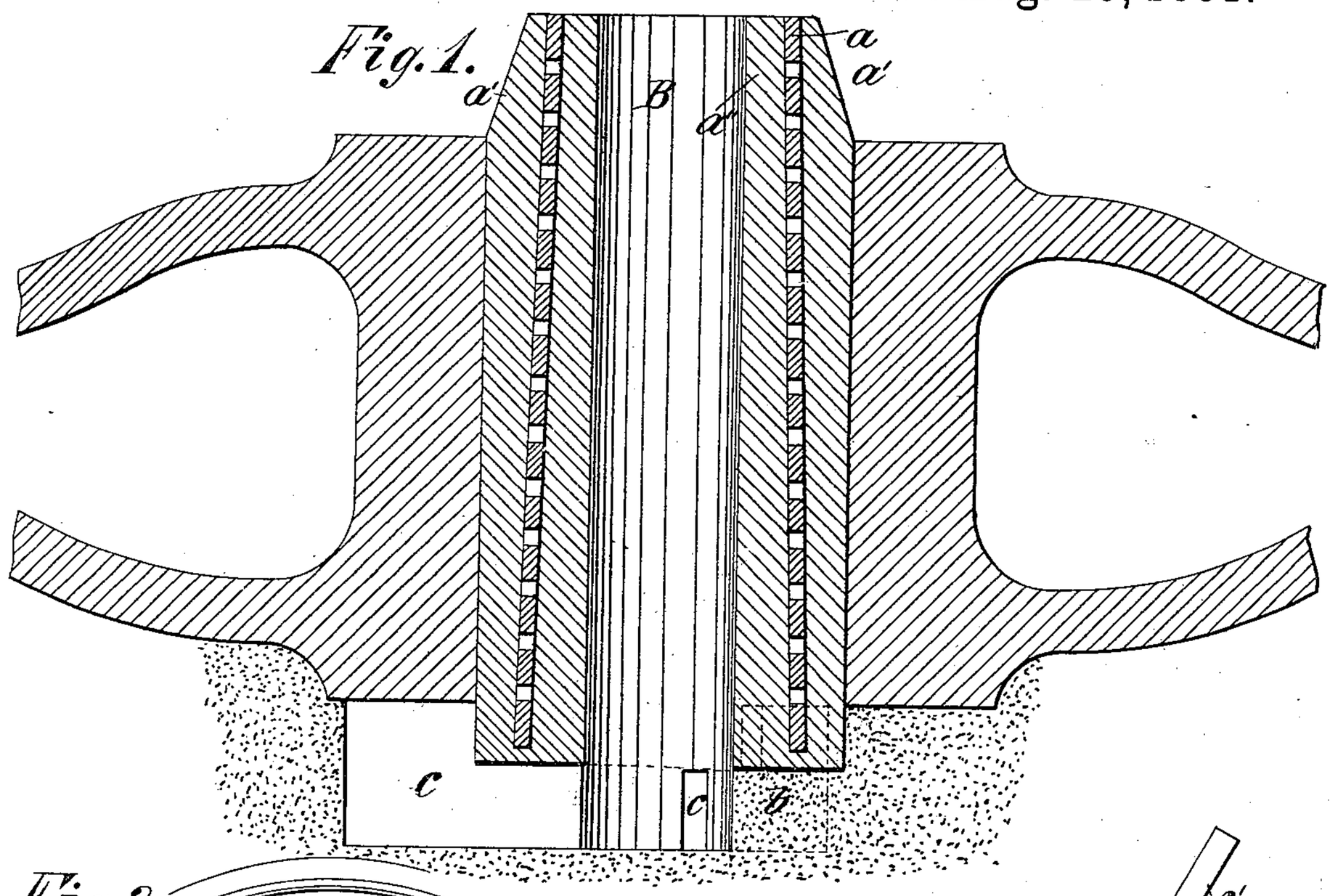


Fig. 2.

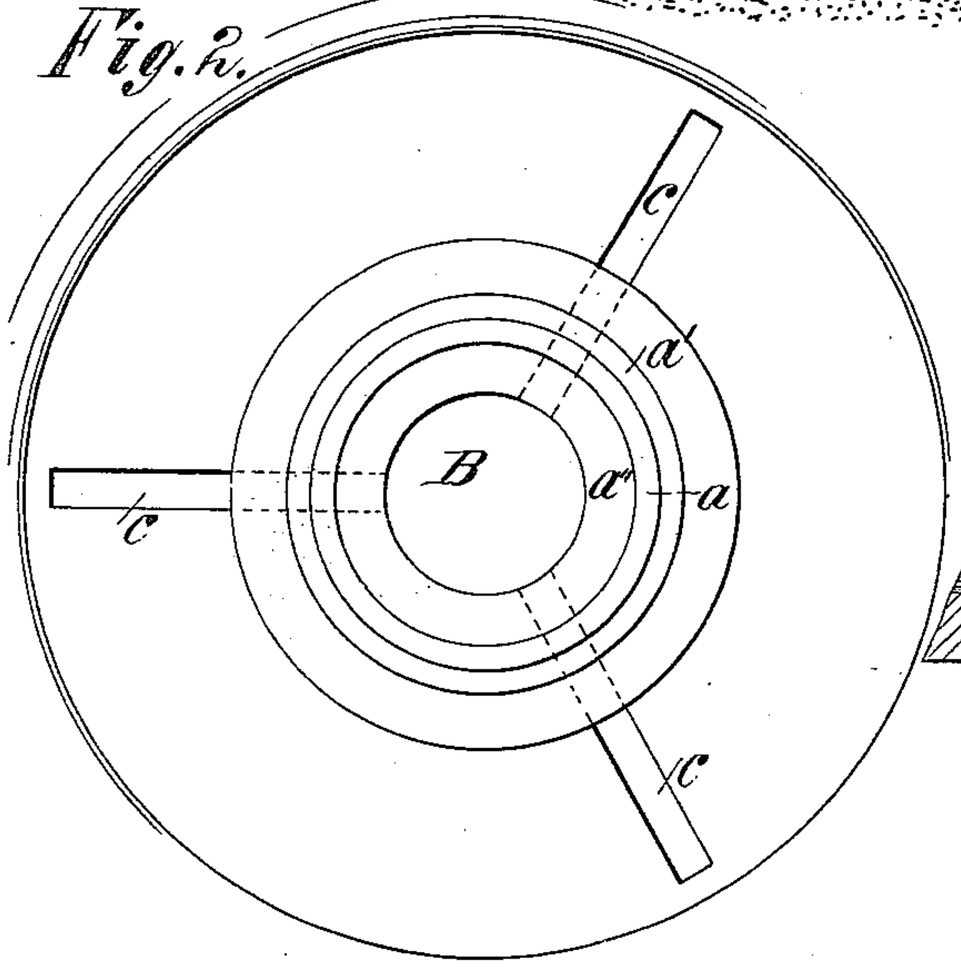


Fig. 3.

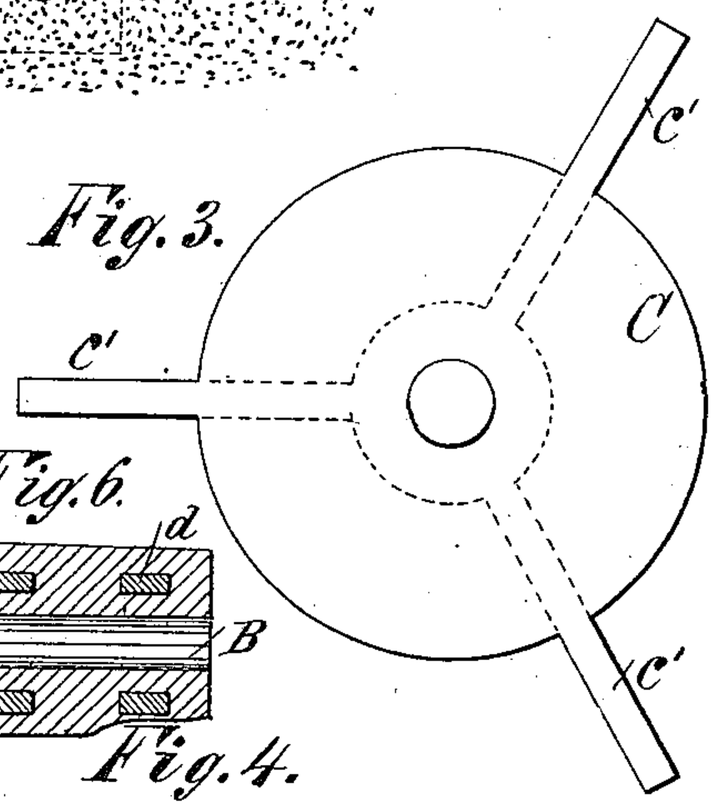


Fig. 6.

Fig. 4.

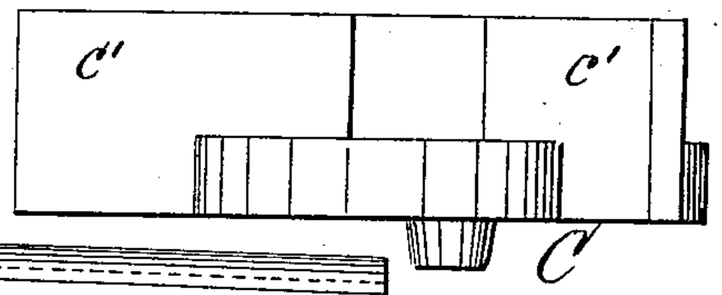
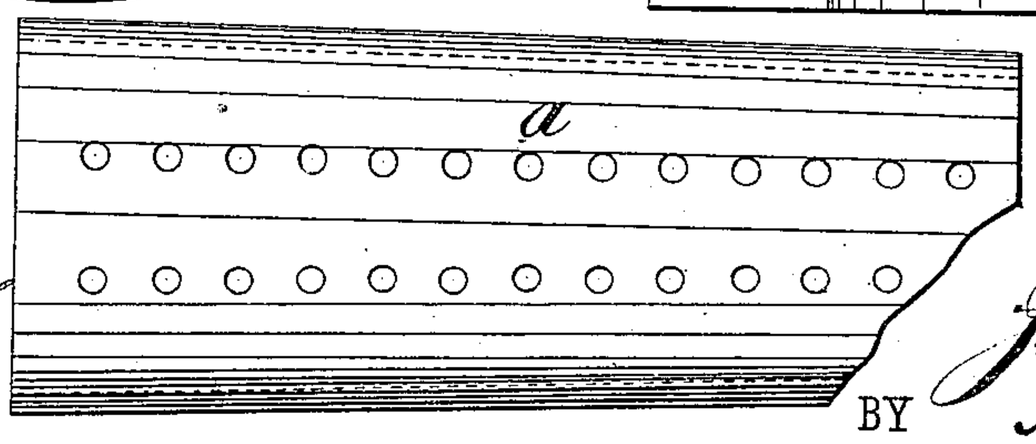


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN FORBES, OF HARRISBURG, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND WILLIAM T. HILDRUP, OF SAME PLACE.

CAR-WHEEL MOLD.

SPECIFICATION forming part of Letters Patent No. 246,114, dated August 23, 1881.

Application filed June 1, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN FORBES, of Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain useful Improvements in Casting Car-Wheels, of which the following is a specification.

My invention relates to certain improvements in car-wheel molds of that form in which the metal is poured through a central hole in the core and rises into the wheel-space from the bottom; and it consists in forming a hollow core with an annular re-enforcing metal stiffening in it, perforated to permit the passage of air and gas through it, and combining this with the drag-sand, which is formed with a circular recess to receive the lower end of the core, and radiating channels that connect the hole in the core with the wheel-space.

In the accompanying drawings, Figure 1 is a central vertical section through the mold and wheel and core, the pouring-gates being shown free of metal. Fig. 2 is a top view of the drag with the core in place. Fig. 3 is a plan view of the print for forming the side gates and the supports for the core. Fig. 4 is a side elevation of the print; and Fig. 5 is a side elevation of the metal tube of my improved core. Fig. 6 shows a modification of the core.

Similar letters of reference indicate corresponding parts.

In carrying my invention into effect I first form in the drag of the mold, in the center, by means of the former or print C, the narrow radial gates *c c c*. The elevated portions of the molding material *b*, which are formed between the wings *c' c' c'* of the print C, support the core A, through which is formed the main pouring-gate B, which gate communicates at the bottom with the side gates, *c c c*. The core A is preferably formed of the cast-metal tube *a*, which is coated upon the outside to the size required with the covering *a'*, of molding or similar material, and lined upon the inside with the molding or similar material *a''*, which latter may be of suitable thickness only to protect the tube from the molten metal as it is poured through the gate B. The core should be longer than the width of the wheel, as shown in the drawings. The metal tube *a* is preferably perforated with numerous small holes to cause the covering material to more readily cling to it, and to allow the escape of gas from the mold through the core to about the same extent that it passes through the other parts of the mold. When the metal is poured through the gate B the first flow of the metal fills the side gates and seals the mold to all outflow of gases or vapors through the pouring-gates, and causes the mold to fill quietly and solidly to the top, thus causing a perfect casting to be formed. When the wheel is raised out of the mold the "sprue," which is attached to the casting on the side of the hub only, is to be immediately broken off by a blow upon the side thereof, which at the same time clears the center of the wheel of the core, which allows the hub of the wheel to cool more rapidly than otherwise, so that it becomes fixed as soon or sooner than other parts, and thus permits the natural and unobstructed contraction of the rim and other parts of the wheel without causing strain or liability of the wheel to crack, which is not the case where the rim of the wheel is allowed to cool first, or more rapidly than the center.

Instead of using the perforated tube *a*, or a tube without perforation, (which latter might be used with very good results,) the iron rings *d*, of any suitable size, may be used for supporting and strengthening the core, the rings to be embedded in the material of the core some distance apart, as shown in Fig. 6, so as not to obstruct the passage of the gas.

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

The hollow car-wheel core provided with a cylindrical or annular perforated metal stiffening, combined with the drag-sand, having imprinted therein a shallow recess, having bottom *b* to sustain the core, and subjacent radial passages *c c*, effecting communication between the interior of the core and the wheel-space, substantially as described.

JOHN FORBES.

Witnesses:
JOHN GASTROCK,
JOS. KNIPE, Jr.