W. S. G. BAKER & W. HYSON.

Car-Wheel Mold.

No. 212,087. Patented Feb. 11, 1879.

Fig. 1.

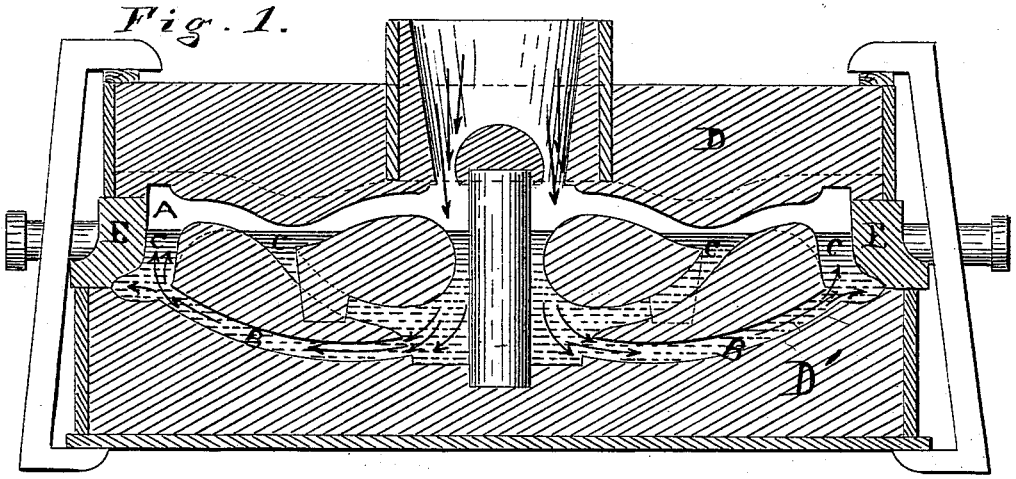


Fig. 2.

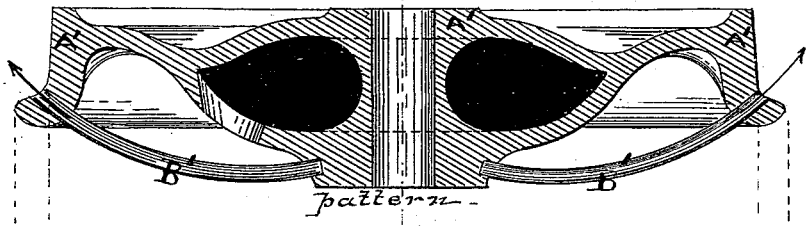
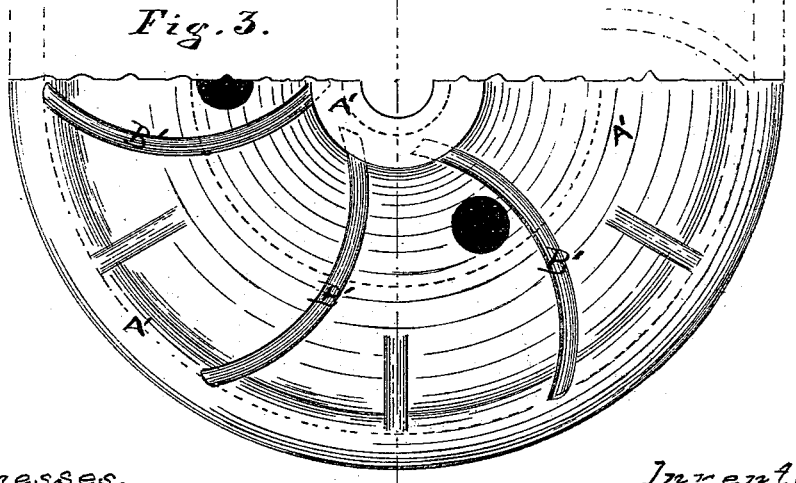


Fig. 3.



Witnesses.

J. L. Crawford

C. M. Hardy

Inventors

W. S. G. Baker

Wm. Hyson

UNITED STATES PATENT OFFICE.

WILLIAM S. G. BAKER AND WILLIAM HYSON, OF BALTIMORE, MARYLAND, ASSIGNORS TO BALTIMORE CAR WHEEL COMPANY, OF SAME PLACE.

IMPROVEMENT IN CAR-WHEEL MOLDS.

Specification forming part of Letters Patent No. **212,087**, dated February 11, 1879; application filed October 31, 1878.

To all whom it may concern:

Be it known that we, WILLIAM S. G. BAKER and WILLIAM HYSON, of the city and county of Baltimore, and State of Maryland, have invented a new and useful Improvement in Molds for Casting Chilled Cast-Iron Wheels, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical central cross-section of the mold, showing cope D, chill E, and drag D′. Fig. 2 is a vertical central cross-section of the pattern of the wheel before being placed in the mold, having attached thereto patterns B′, for forming in the mold passage-ways. Fig. 3 is bottom plan of the same.

The object of our invention is to pour rapidly the molten metal at a high temperature, and convey the first and hottest iron so poured directly to that part of the mold A forming rim A′ of the wheel.

As shown in Fig. 1 the mold A is formed from a pattern of an ordinary double-plate wheel; but instead of allowing the metal to fill up the body of the mold A, and then pass to the outer part or rim by way of the plate and brackets, the mold A is provided with auxiliary gates or passage-ways B, leading from the bottom or lowest central part of the mold A to the inside bottom part of the outer part or rim. The metal C C, as poured into the mold A, passes from the center of the mold along such gates or passage-ways B B, and fills the outer part or rim as rapidly as the center or hub. The metal flowing from the lowest part of the mold, only the cleanest and hottest iron will pass to the rim.

By this system the impurities which float on the surface of the molten iron gradually rise as the metal is poured, remaining at the center, and rising to the top of the mold. In old processes of pouring—in one the entire body of the mold fills first, and the metal to reach the rim has to pass over the plates, the surface iron passing over first by way of the plates and brackets. The iron is thus chilled, and when it reaches the rim or chill E of the mold is of uneven temperature, causing uneven chill in the wheel and liability to chill-crack. It also contains the floating impurities, forming imperceptible defects on the rims of the wheels.

In another process the metal passes through a hollow core into a basin underneath the core, and thence by auxiliary gates to the rim, filling the entire mold through the gates, first the rim, and then, by way of the plates, the hub; or thence in two streams, one into the bottom of the mold at the hub, and the other by auxiliary gates to the center of the plates.

In another plan the metal passes from the bottom of the hub to the rim through auxiliary gates, and also to center of mold at bottom of hub, all metal passing into the mold through the opening in the core.

Our arrangement of gates can be applied to any of the ordinary patterns in use, and is formed by iron rods B′, inserted in the hub of the wheel-pattern A′, passing through its outer part or rim, so that they can be drawn from the pattern A′ and mold D′ when the chill and cope part of the mold are lifted off to withdraw the pattern from the mold. The gates or passage-ways B can be made straight from the hub to the rim of the wheel, or curved, as shown in Figs. 1, 2, and 3. The results will be better by using the curved form, as the metal can be forced thereby to flow more rapidly and uniformly into and around the outer part of the mold A at a point in contact with that part of the mold A formed by the chill E.

We claim as our invention—

A car-wheel mold having one or more auxiliary gates or passage-ways leading from the lower part of its hub portion to the lower part of its rim portion, as and for the purposes set forth.

WM. S. G. BAKER.
WM. HYSON.

Witnesses:
J. M. LAWFORD,
C. M. HARDY.