

W. A. MILES.  
Casting Car-Wheels.

No. 156,257.

Patented Oct. 27, 1874.

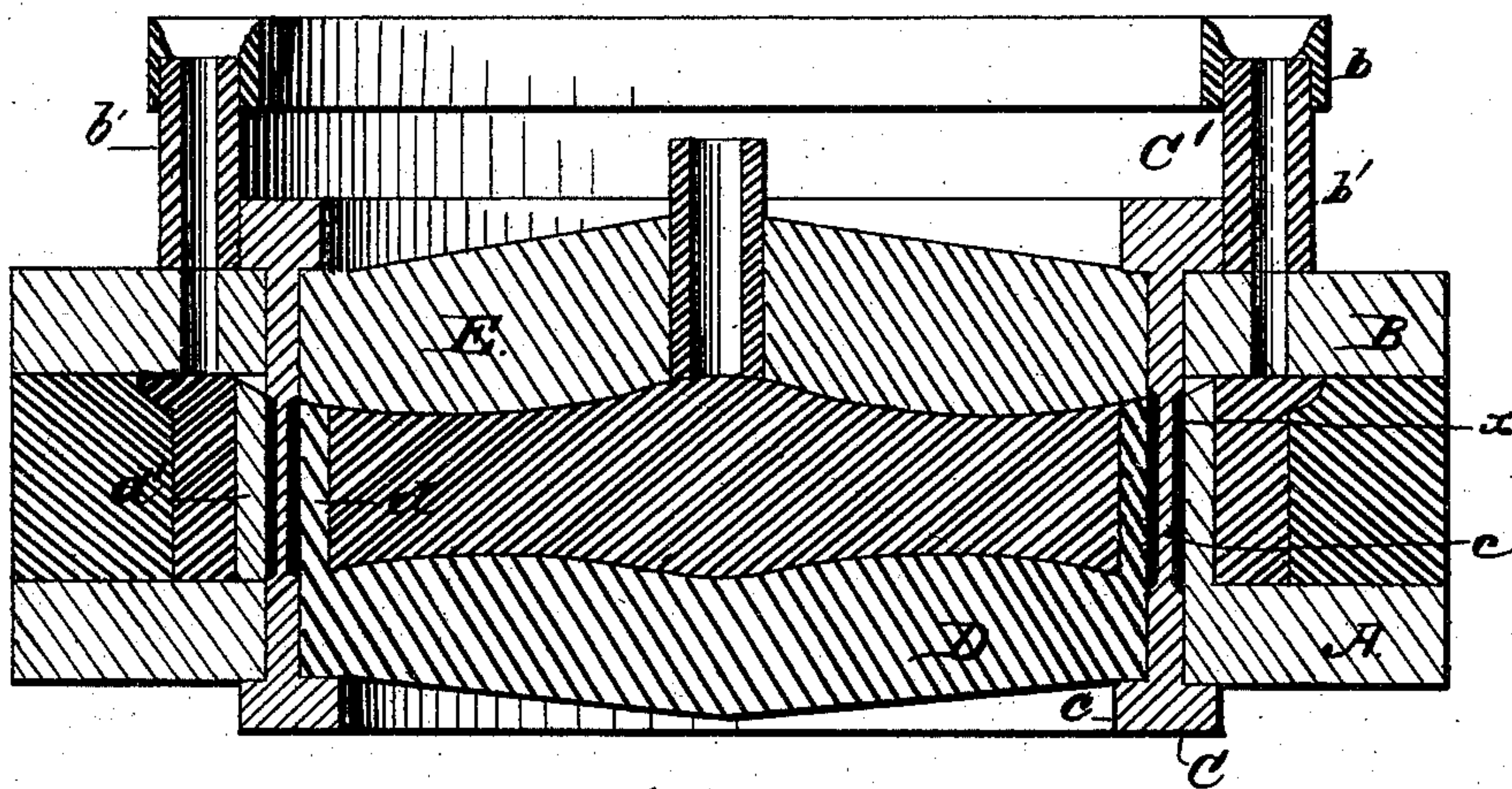


Fig 1.

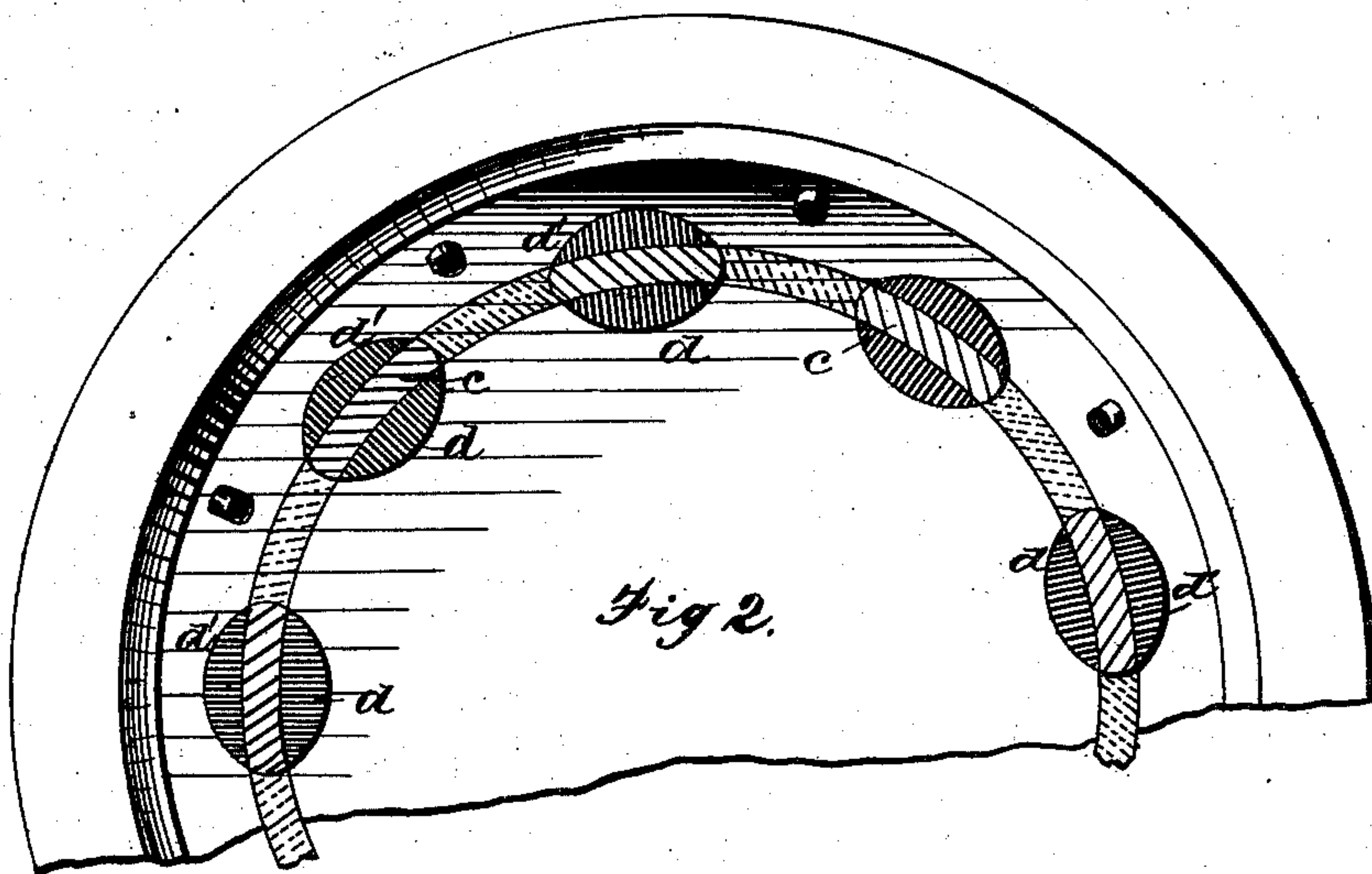


Fig 2.

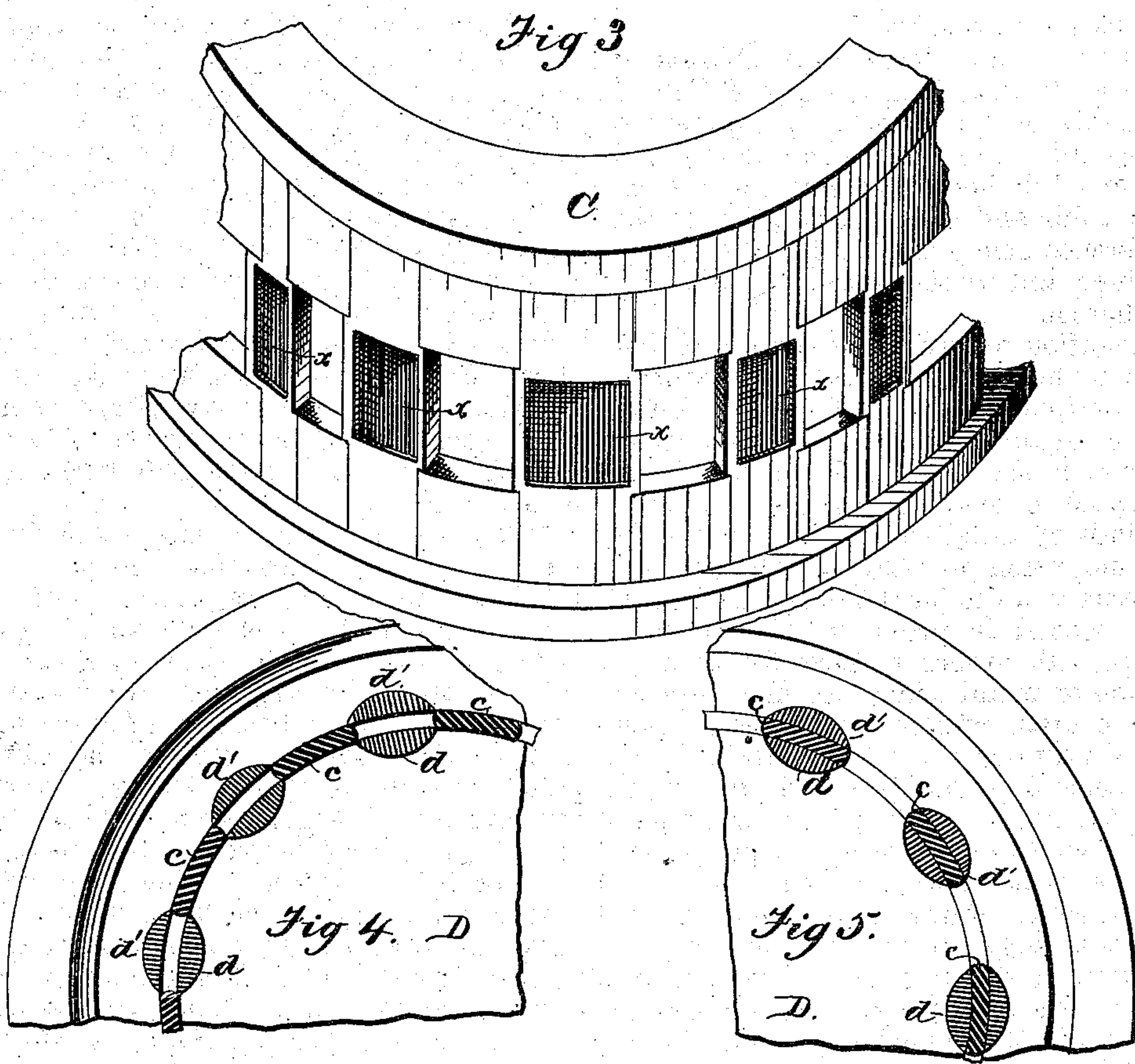
Witnesses;  
Harry C. Clark  
James J. Finley

Inventor.  
W. A. Miles  
by H. W. Beadle & Co.  
attys.

W. A. MILES.  
Casting Car-Wheels.

No. 156,257.

Patented Oct. 27, 1874.



Witnesses;

Harry C. Clark  
James J. Furley

Inventor.

W. A. Miles  
by H. W. Beadle & Co.  
Attys



# UNITED STATES PATENT OFFICE.

WILLIAM A. MILES, OF COPAKE IRON WORKS, NEW YORK.

## IMPROVEMENT IN CASTING CAR-WHEELS.

Specification forming part of Letters Patent No. **156,257**, dated October 27, 1874; application filed August 13, 1874.

### CASE C.

*To all whom it may concern:*

Be it known that I, WILLIAM A. MILES, of Copake Iron Works, in the county of Columbia and State of New York, have invented new and useful Improvements in Casting Car-Wheels; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

This invention relates to the casting of that class of car-wheels which have their central and their peripheral portions formed of different kinds or qualities of metal; and it consists mainly, first, in the construction of a series of gates adapted to keep separate the two qualities or kinds of metal during the process of pouring, and, when properly operated, to permit the same to unite for the purpose of welding; and, second, in providing the intermediate gates with proper recesses for holding that portion of metal which becomes slightly cooled by contact with them, so that, when the divided portions of the hot metal are permitted to come together by the withdrawal of the gates, the parts in contact will be in a perfectly fluid condition, by which means a perfect union is formed between them.

In the drawings, Figure 1 represents a central vertical sectional elevation; Fig. 2, a partial plan view of the drag and lower portion of the flask; Fig. 3, a partial perspective view of the gates and their operating-rings; Fig. 4, a partial plan view, representing the gates closed to separate the two kinds of metal; and Fig. 5, a similar view, representing the gates open to permit the metals to unite.

To enable others skilled in the art to understand my invention, and practice the same readily, I will proceed to fully describe the same.

A represents the bottom portion of the flask, constructed, generally, of any proper size, and in any suitable manner. B represents the top portion provided with the circular gutter or trough *b*, supported by tubes *b'*, adapted to conduct the metal to the periphery of the wheel, as shown. C represents a ring, suitably held in the lower portion of the flask;

C', a corresponding ring held in the upper portion of the flask, and *c c c* an intermediate series of gates, by means of which the two are united together. D represents the drag, of any proper configuration, which is supported by the interior flange *c'* of the lower ring C, and is essentially provided with the series of cores *d d*, which in their outline are nearly semi-elliptical in form. *d' d'* represents a corresponding series of cores, of similar form, which are permanently attached to the interior of the lower portion of the flask, as shown. E represents the cope, of any suitable construction, provided with the central opening for receiving the metal to form the interior portion of the wheel.

When the parts are in place, ready for casting a wheel, the cores upon the body of the flask and upon the drag are opposite each other, with an intermediate space between each pair, adapted in size and position to receive a gate, when the rings are properly revolved. The gates themselves first occupy an intermediate position between the different pairs of cores, as shown in Fig. 4, so that a continuous wall is formed which perfectly separates the central portion of the wheel from the peripheral portion. When, however, in casting the proper moment is reached, the gates are revolved, by suitable means, until they occupy the space between each pair of cores, so that these parts together constitute a single elliptical core adapted to form the proper openings in the wheel. By this means the two metals are permitted to flow together in the open space before occupied by the gates, as indicated in Fig. 5.

The gates themselves, it will be observed, are provided with recesses X upon each side, by means of which they are adapted to retain the slight crust formed by the chilling of the metal as it comes in contact with them, and remove the same, so that those parts of the metal which are caused to come into contact with each other, by the withdrawal of the gates, will unite in a perfectly-fluid condition, and thus form a most perfect connection.

From the foregoing description the operation will be readily understood.



The flask and mold having been properly prepared, and the parts suitably adjusted to each other, molten metal of one kind is introduced into a central opening, and of another kind into the peripheral tubes, the intermediate gates being so arranged as to separate the two divisions of the flask, as indicated in Fig. 4. When the proper moment has arrived the gates are properly revolved, by means of the rings, for the purpose of permitting the two metals to come together for welding, the gates in their movement removing the slight crust formed upon them, so that the uniting metals come together in a perfectly fluid condition, and make a perfect connection. The gates in their movement pass into the space between each pair of cores, and make with them a single core adapted to form the proper openings in the wheel.

If desired, the gates may be raised instead of being revolved, in which case they should be attached only to the upper ring.

If desired, the gates may be provided with roughened, corrugated, or indented surfaces, or be otherwise adapted, for the purpose of retaining perfectly the crust formed upon them.

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

1. The series of revolving gates *c*, in combination with the fixed cores *d d'*, the gates being adapted, when revolved, to rest between the cores *d d'*, and complete the form of the same, substantially as described.

2. The separating-gates provided with recesses for removing and retaining the chilled or crust portion, substantially as described.

This specification signed and witnessed this 6th day of August, 1874.

WILLIAM A. MILES.

Witnesses:

HARRY C. CLARK,

E. R. L. BEADLE.