WILLIAM M. ARNOLD.

Improvement in the Construction of Car-Wheels.

No. 127,544. Patented June 4, 1872.

Fig. 1

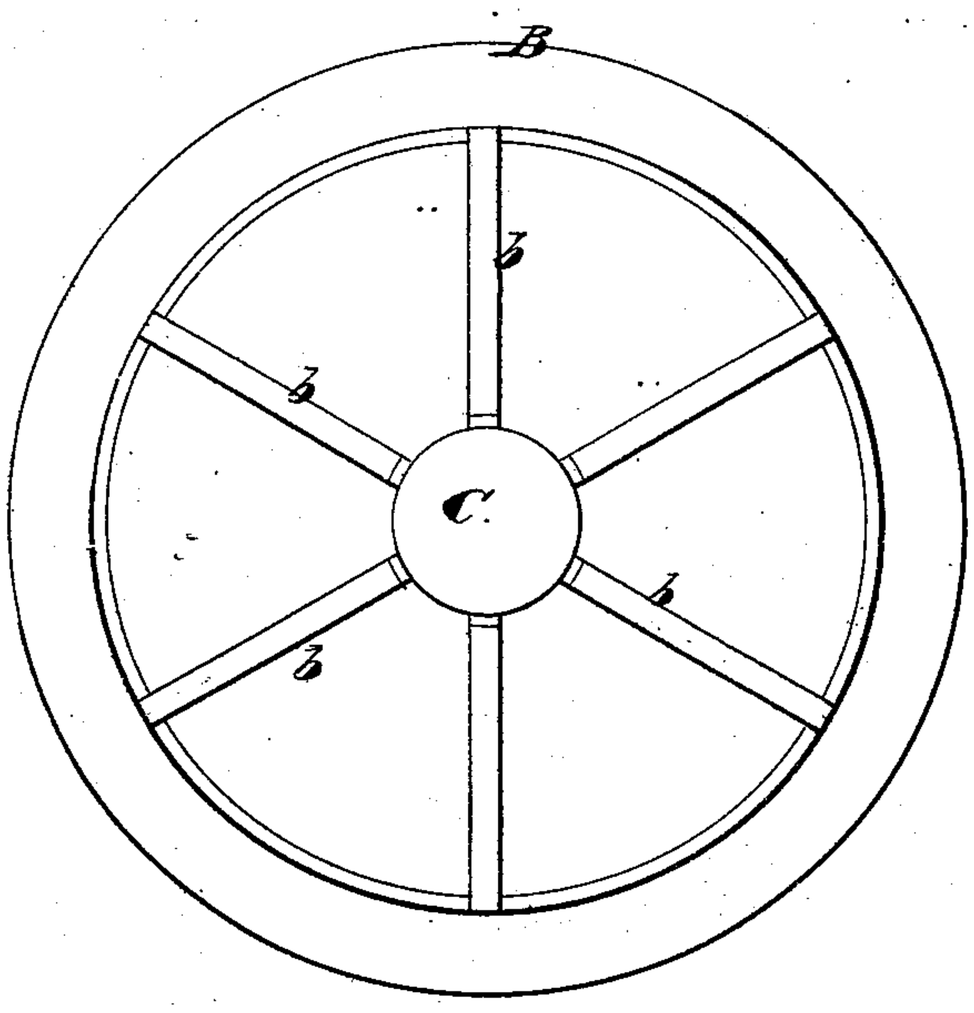


Fig. 3

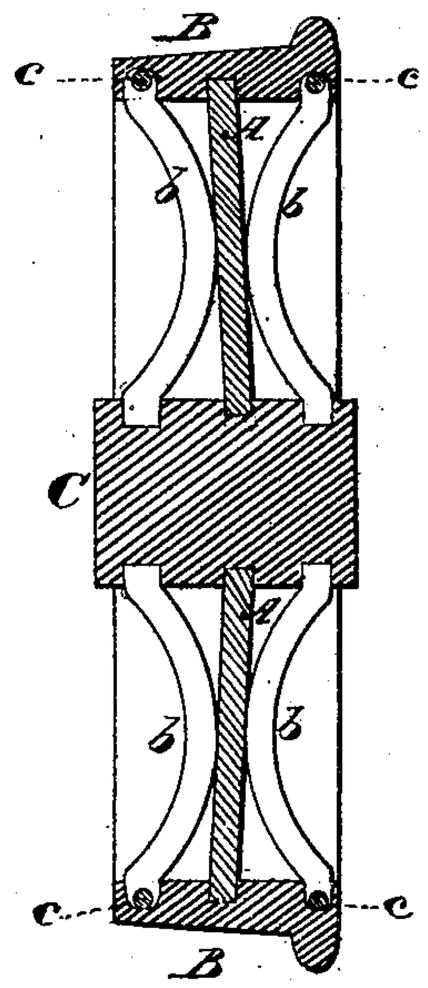
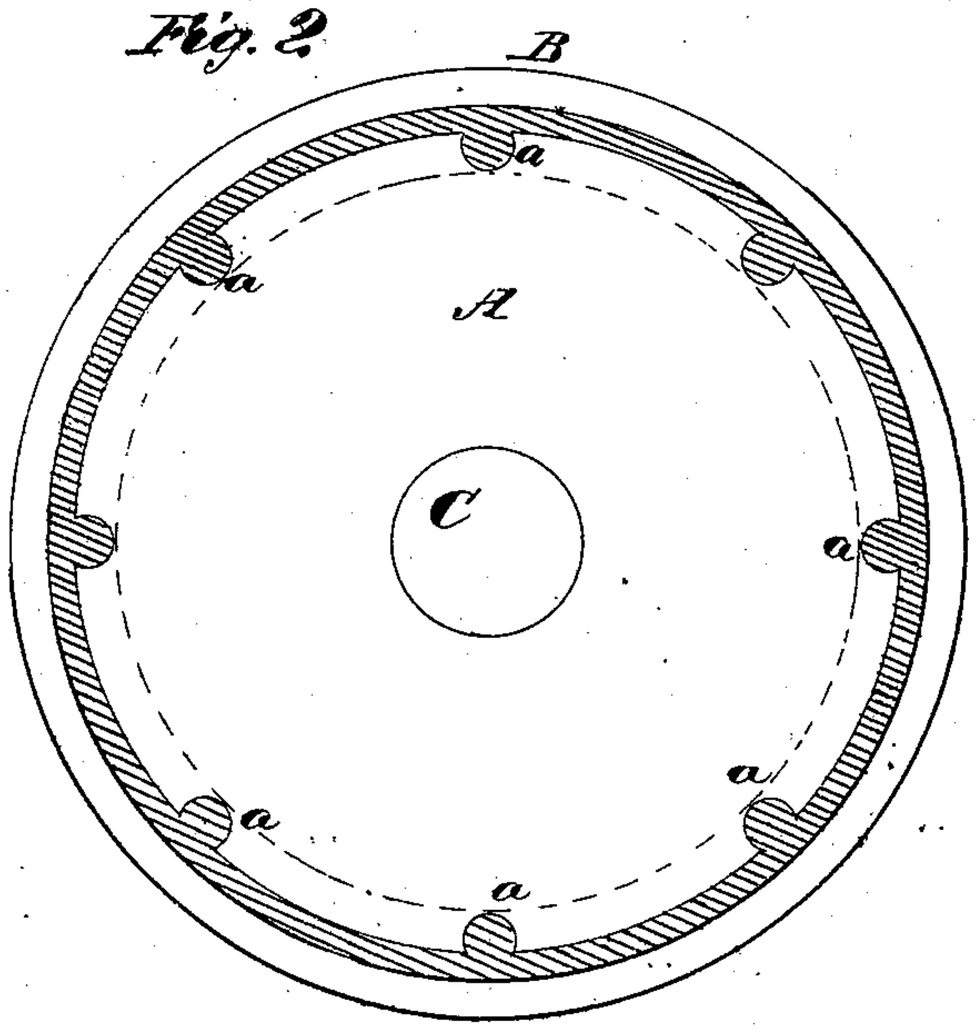


Fig. 2



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UNITED STATES PATENT OFFICE.

WILLIAM M. ARNOLD, OF NEW YORK, N. Y.

IMPROVEMENT IN THE CONSTRUCTION OF CAR-WHEELS.

Specification forming part of Letters Patent No. 127,544, dated June 4, 1872.

To all whom it may concern:

Be it known that I, WILLIAM M. ARNOLD, of the city and county of New York and State of New York, have invented a new and useful Improvement in the Construction of Car-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a plan of the side of the wheel. Fig. 2 represents the wrought-iron center-plate, to be described hereafter. Fig. 3 is a diametrical section of the wheel.

The object of my invention is to construct a car-wheel which shall be lighter and better than others of equal strength and equal cost. To effect this object I construct it, with the hub C and the rim B, of cast-iron, and the remaining parts of wrought-iron, in the following manner: The center-plate A, which forms the web of the wheel, is made of boiler-plate iron, about one-fourth of an inch in thickness, more or less. It has, upon its outer edge, notches *a a a*, which I usually form of parts of circles greater than semicircles, so that when they become filled with the molten iron that forms the rim they shall act as dovetails to hold the web and the rim fast to each other. These center-plates A may be formed of flat plates, but I prefer in general to make them somewhat dishing, as shown in Fig. 3, to the amount of an inch or an inch and a half. The plates may be formed from wrought-iron or steel; if of the latter it may be made lighter than above stated. This center-plate should be about one inch and a quarter greater in diameter than the interior diameter of the rim of the wheel, so that it will penetrate that rim about five-eighths of an inch on all sides. The inner circle, which limits the radial breadth of this web, should be about an inch smaller in diameter than the extreme diameter of the hub, so as to penetrate half an inch on all sides into that hub when it is cast. When thus prepared it is placed in a die and dished, as above described.

Braces or spokes *b b b* extend from the hub to the rim, each of which are made to penetrate to about the same depth as is done by the center-plate, as above described. The two ends of these spokes should penetrate the hub and rim near their outer edges, respectively. They are placed directly opposite each other on the two sides of the center-plate, against which they ought to bear, about midway between the hub and the rim, and may be riveted through at this point of tangency, though this will be found unnecessary. I prefer making them of round iron rods three-fourths or seven-eighths of an inch in diameter. I generally place two rings made of round iron about five-eighths of an inch in diameter, and extending around the entire circumference of the rim of the wheel, as shown in section at *c c*, Fig. 3. They should be placed at the ends of the braces *b b*, and are cast into the substance of the rim to prevent it from breaking.

Instead of the center-plate and braces, as above described, I sometimes form a wheel with two independent webs or plates, which may be dished, as above described, and placed near the outer and inner edges of the hub and rim, respectively, and there cast into the metal of those parts. To give strength to those plates they may each be corrugated radially before being placed in the wheel.

Having described my invention, what I claim as new, is—

The car-wheel composed of wrought and cast metal, the respective parts thereof being constructed, arranged, and combined, substantially as herein described.

WILLIAM M. ARNOLD.

Witnesses:
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