I. Van Kuran,

Car Wheel.

No 6415. Patented May. 1. 1849.

Fig: 1

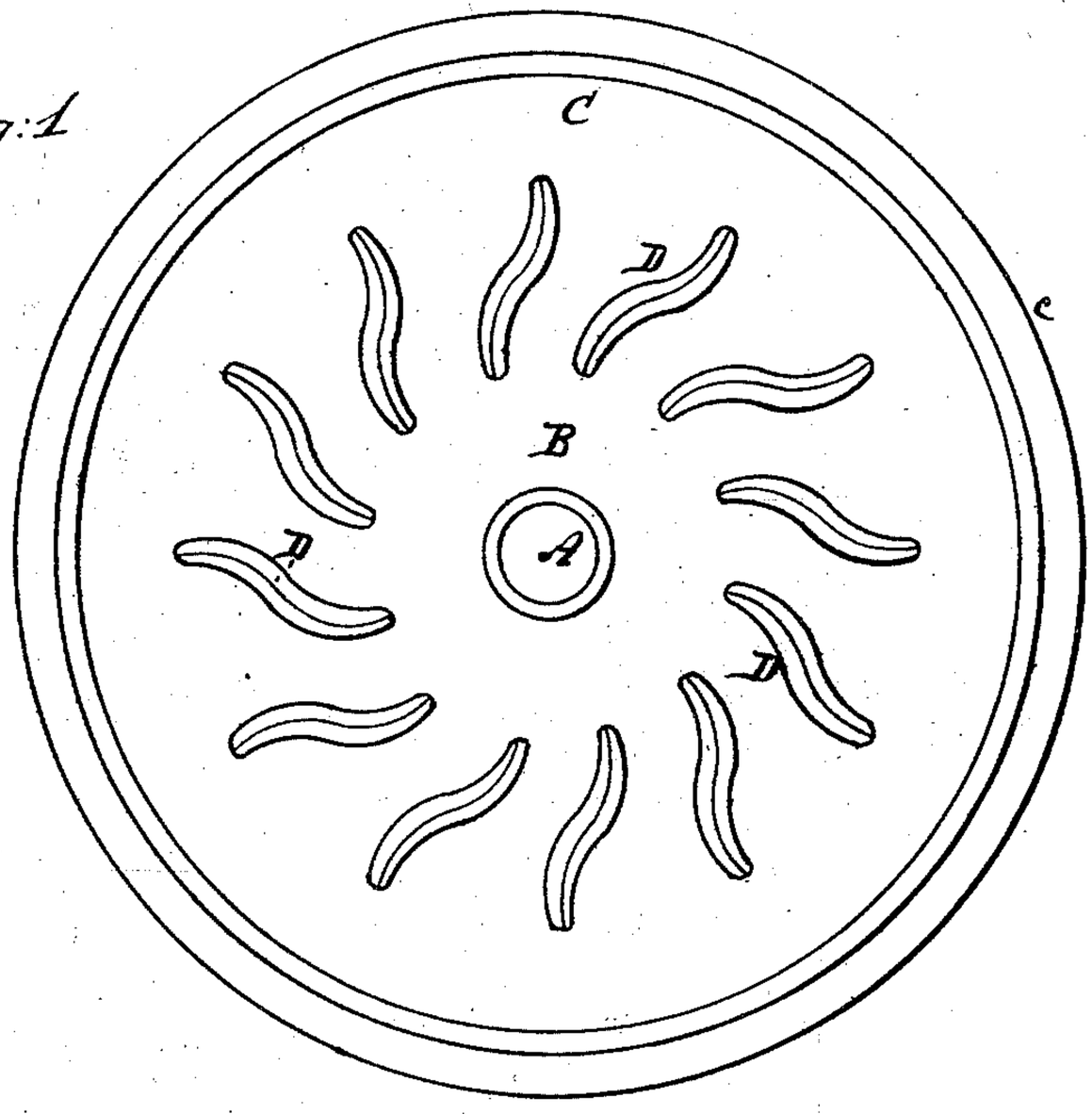


Fig: 3.

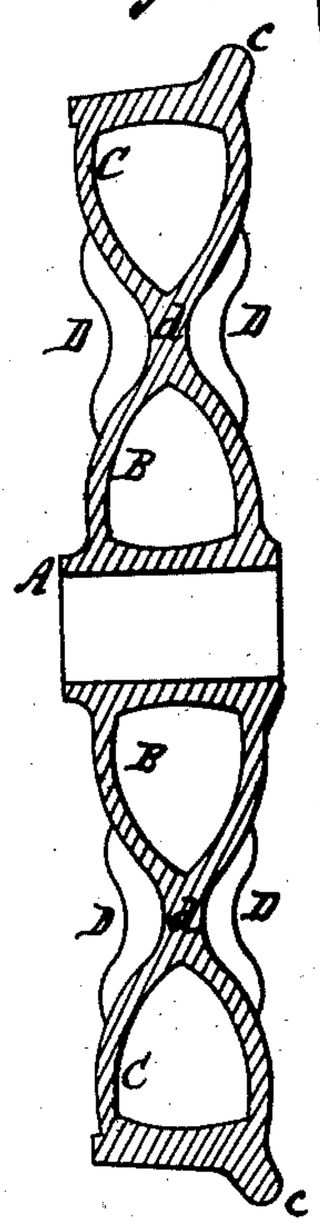


Fig: 4.

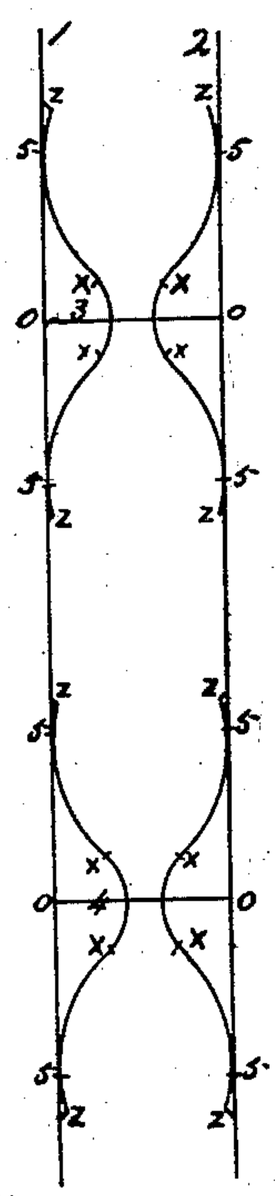
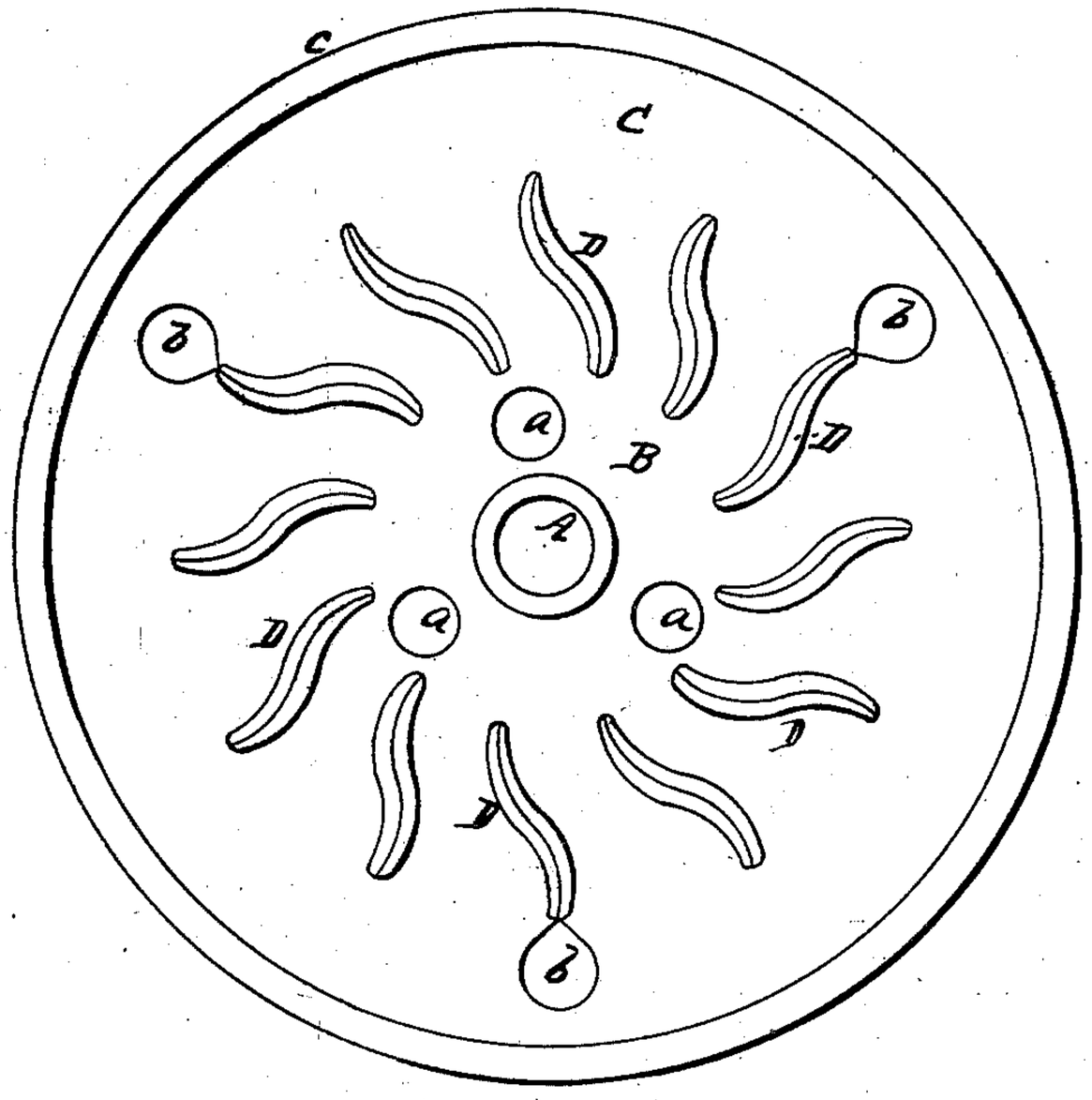


Fig. 2



UNITED STATES PATENT OFFICE.

ISAAC VAN KURAN, OF ROCHESTER, NEW YORK.

CAST-IRON CAR-WHEEL.

Specification of Letters Patent No. 6,415, dated May 1, 1849.

To all whom it may concern:

Be it known that I, ISAAC VAN KURAN, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Railroad-Car Wheels, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1, is an elevation of the outer side of the improved wheel. Fig. 2, is an elevation of the inner side of ditto. Fig. 3, is a vertical transverse section through the center of the same. Fig. 4, is a diagram representing the exterior lines of ditto, and the mode of arriving at the same.

Similar letters in the figures refer to corresponding parts.

The nature of this invention and improvement consists in casting railroad car wheels with a rim of the form of a semi-ellipsis, and of an oblate spheroidal form at the center or hub part, with braces on either side, in such a manner as to strengthen the same, remove all danger of breakage from cooling, and cause the pressure and strain exerted on the hub to be more equally divided over the several parts of the wheel, than in the ordinary form of car wheels now in use.

To enable others skilled in the art to make and use my invention I will proceed to give a more full description of the same.

A is the hub, which is cast solid with the other parts of the wheel.

B is the oblate spheroidal formed shell, in the center of which the hub is formed, having openings *a*, on its outer side to allow the core being taken from the same, and the metal to shrink while cooling, and thus prevent it from cracking.

C is the rim of the wheel, chilled, and resembling in cross section the form of a semi-ellipsis, being provided with openings *b*, similar to the openings *a*, and the usual flange *c*, and having an intervening solid body of metal *d*, between its inner part and the shell B surrounding the hub.

D are braces cast on either side of the wheel, resembling in form cima-reversas and cima-rectas, those on the inner side being situated between those on the outer side.

The form of the wheel being of such a peculiar and novel nature as to prevent its full elucidation by reference to geometrical figures, or mechanical terms, I have prepared a diagram, represented in Fig. 4, illustrating the mode by which the form of the same may be arrived at. In this figure parallel lines the desired width or thickness of the wheel at the rim, and inner shell, and its full diameter, are first laid down as at 1, 2, and transverse lines 3, 4, are drawn midway between their centers and extremities. The point of the compass is then placed at the points *o*, *o*, *o*, *o*, and a corresponding number of segments of a circle are scribed. The compass is then extended to correspond with the curvatures of the rim and inner shell, and from points 5, on the lines 1, 2, segments of a circle *z*, *x*, connecting with the segments *x x* are drawn, which gives the cross section outline of the outer surfaces of the rim C, and oblate spheroidal shaped shell B, and the same outline of the curved valley or intervening solid spaced *d* between. This form of wheel will be found light, durable, free from danger of breakage in casting, and capable of bearing great pressure and strain, from the fact that the weight bearing on the hub will be equally divided between all the parts of the rim, and inner shell of the wheel, lying below the level of the hub, and the cima-reversa and cima-recta formed braces D, being arranged between the same in contrary positions on either side of the wheel, will assist to strengthen the same.

What I claim as my invention and desire to secure by Letters Patent is—

Casting railroad car wheels with a rim C, of the form of a semi-ellipsis, and of an oblate spheroid B near the center,—the hub A, being cast solid with the same,—with braces D, of the form of cima-reversas and cima-rectas formed in the valley between the rim and oblate spheroidal shell surrounding the hub, arranged in contrary directions on either side, in the manner and for the purpose herein set forth.

ISAAC VAN KURAN

Witnesses:

CARLTON DUTTON,

JOHN W. DWINELLE