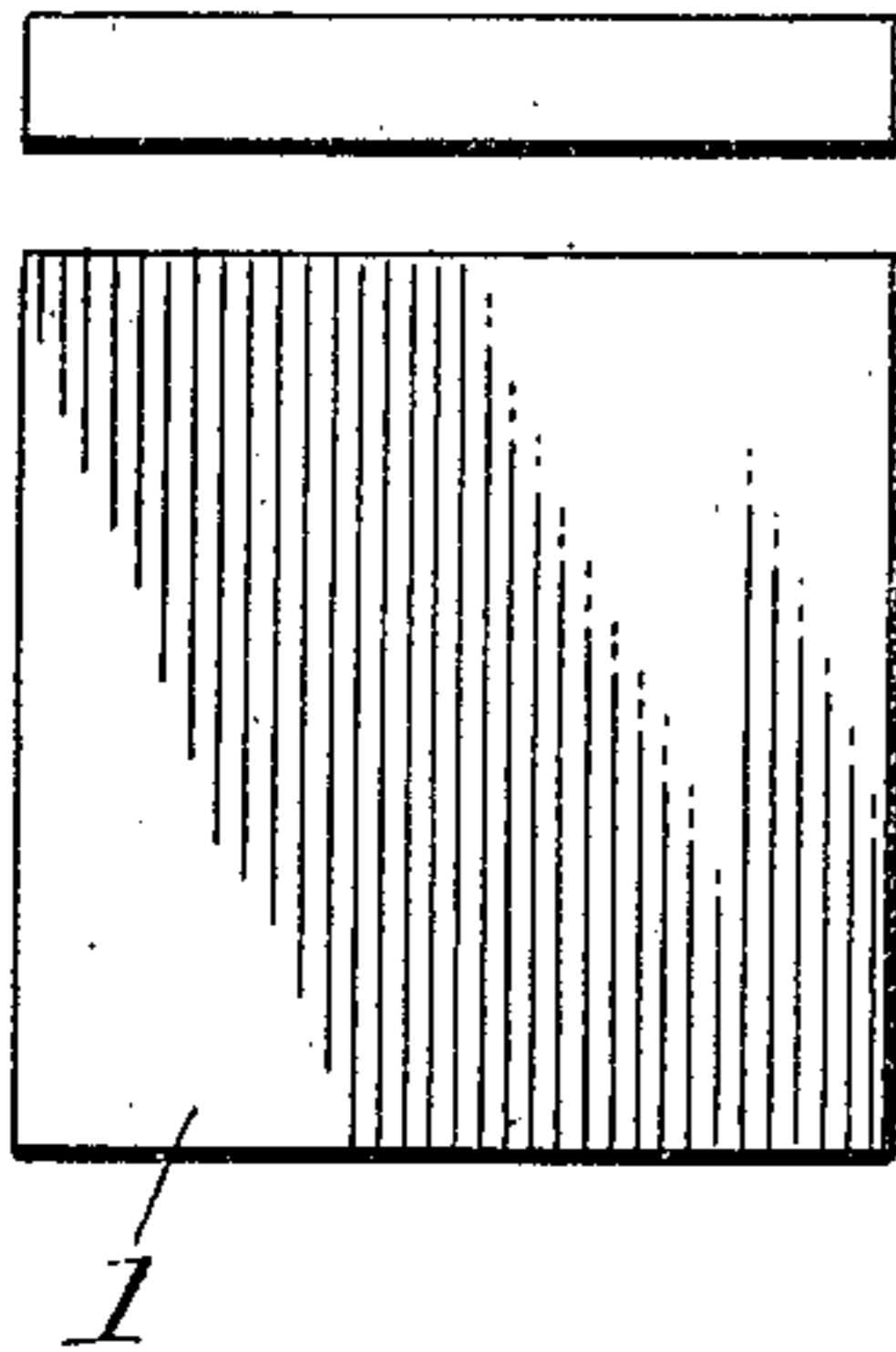


No. 797,919.

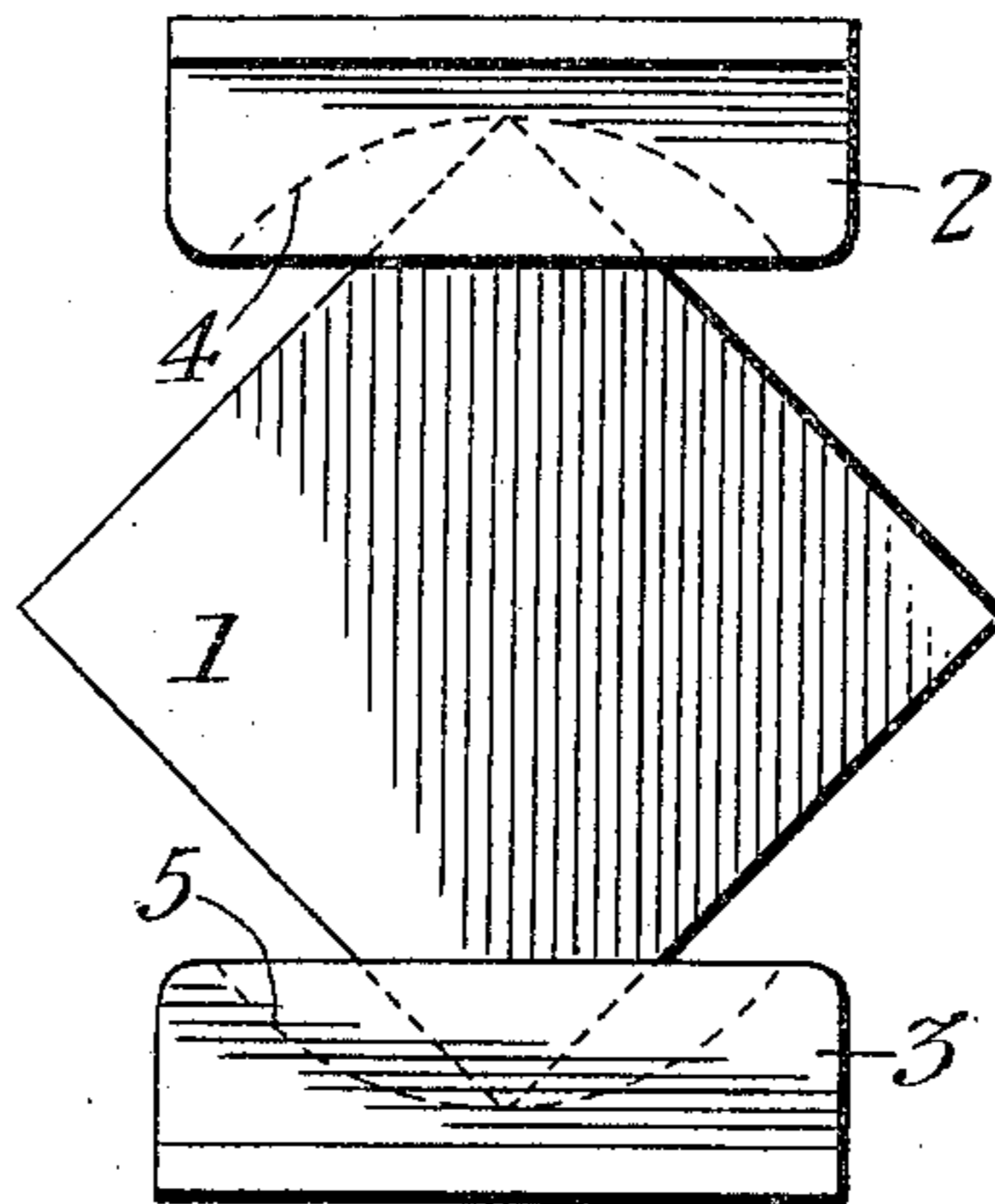
PATENTED AUG. 22, 1905.

C. T. SCHOEN.  
FORGED CAR WHEEL.  
APPLICATION FILED JUNE 22, 1904.

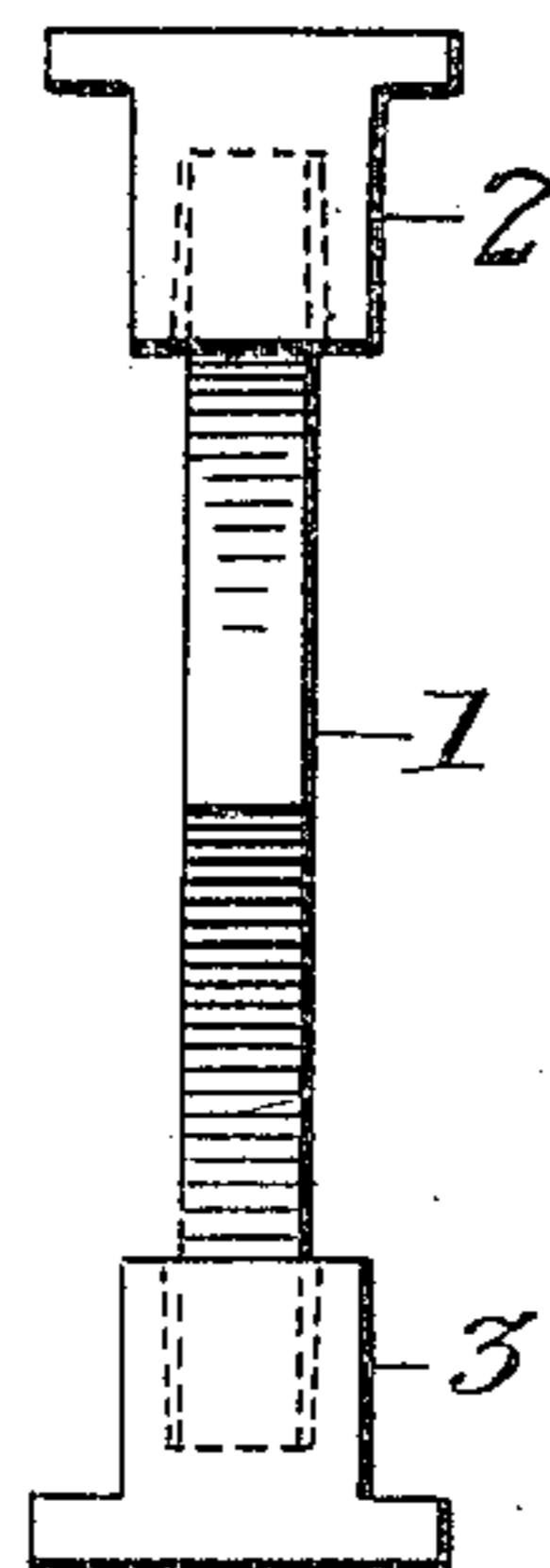
*Fig. 1.*



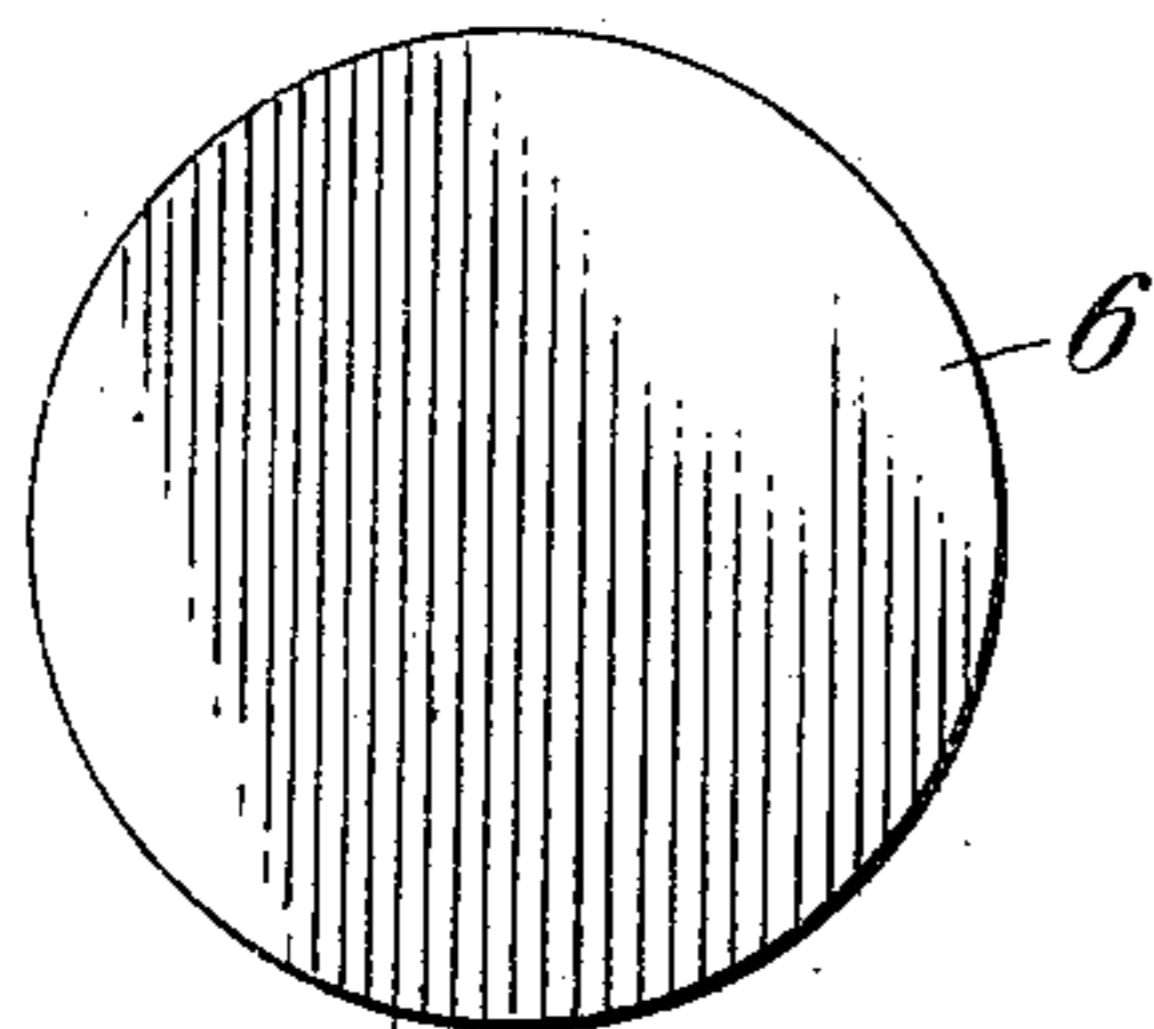
*Fig. 2.*



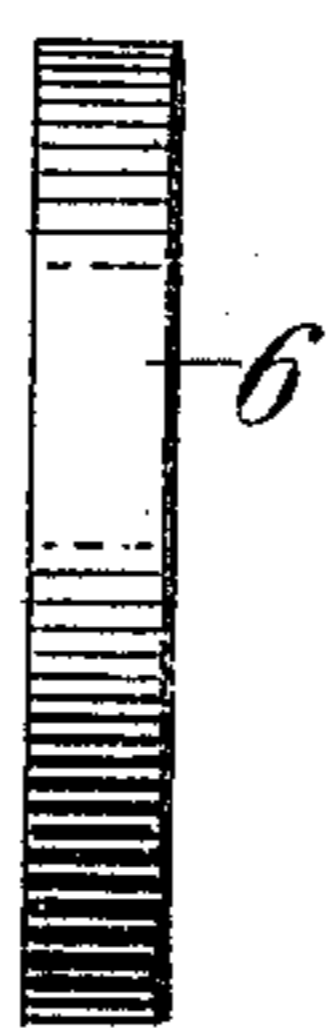
*Fig. 3.*



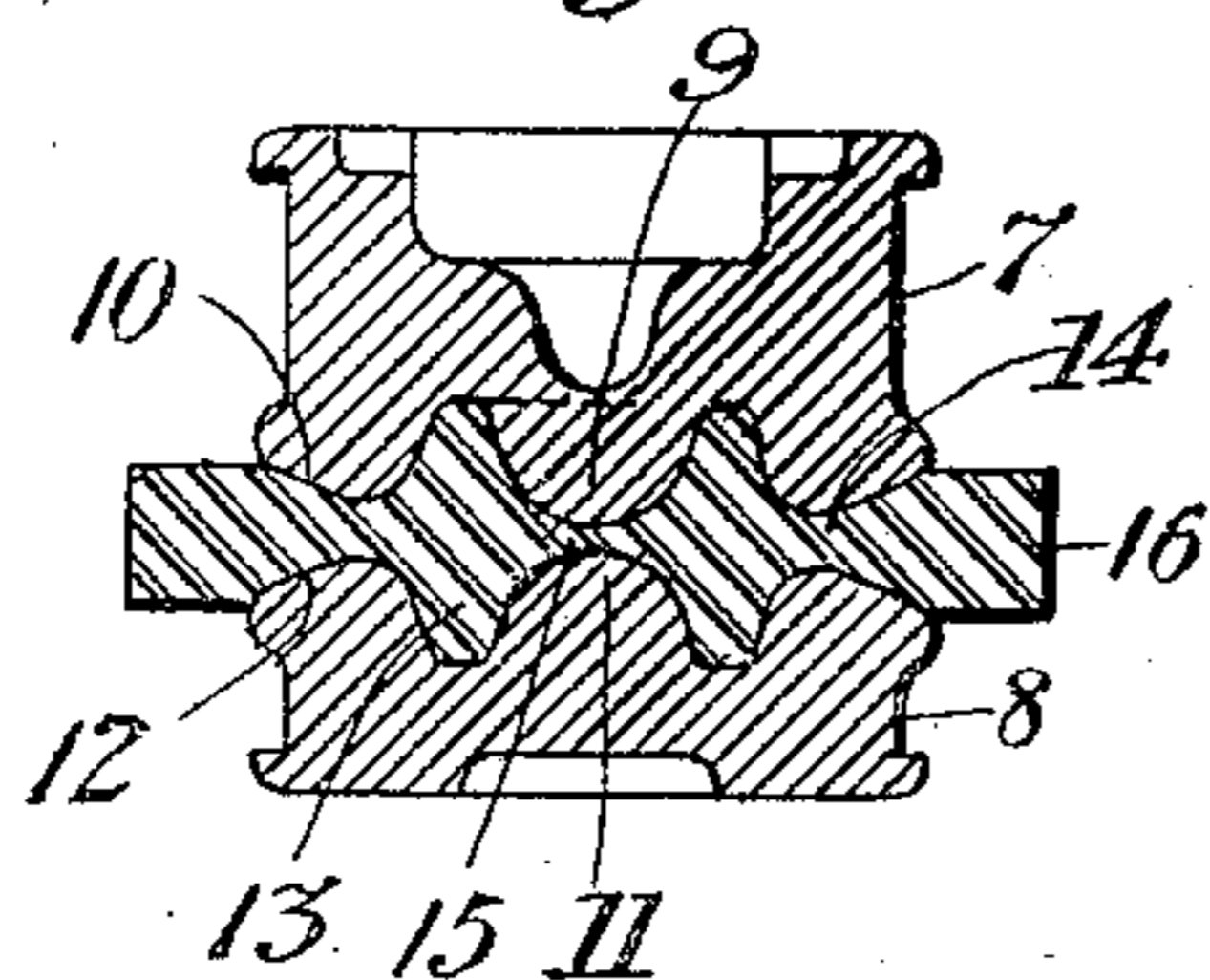
*Fig. 4.*



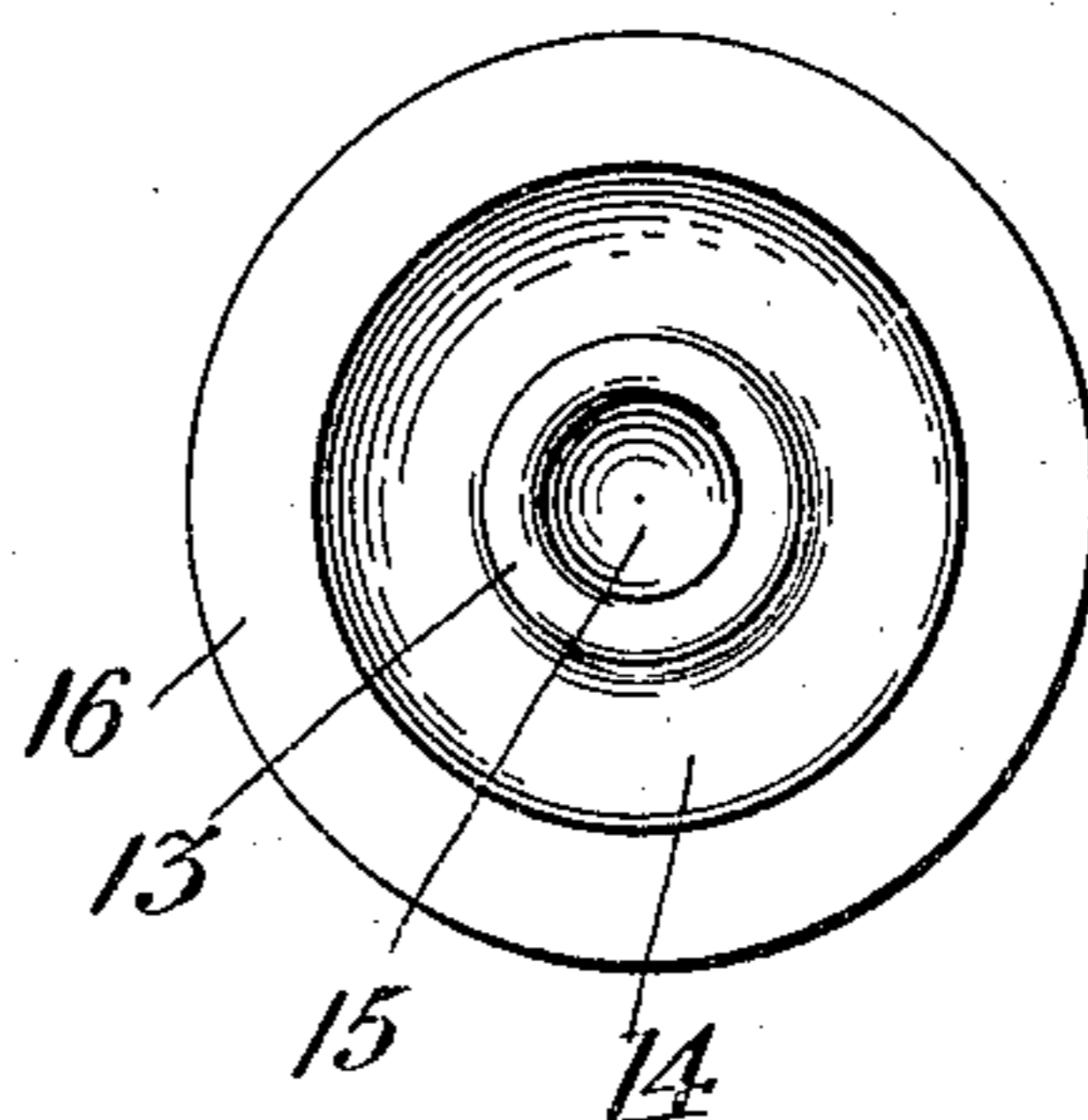
*Fig. 5.*



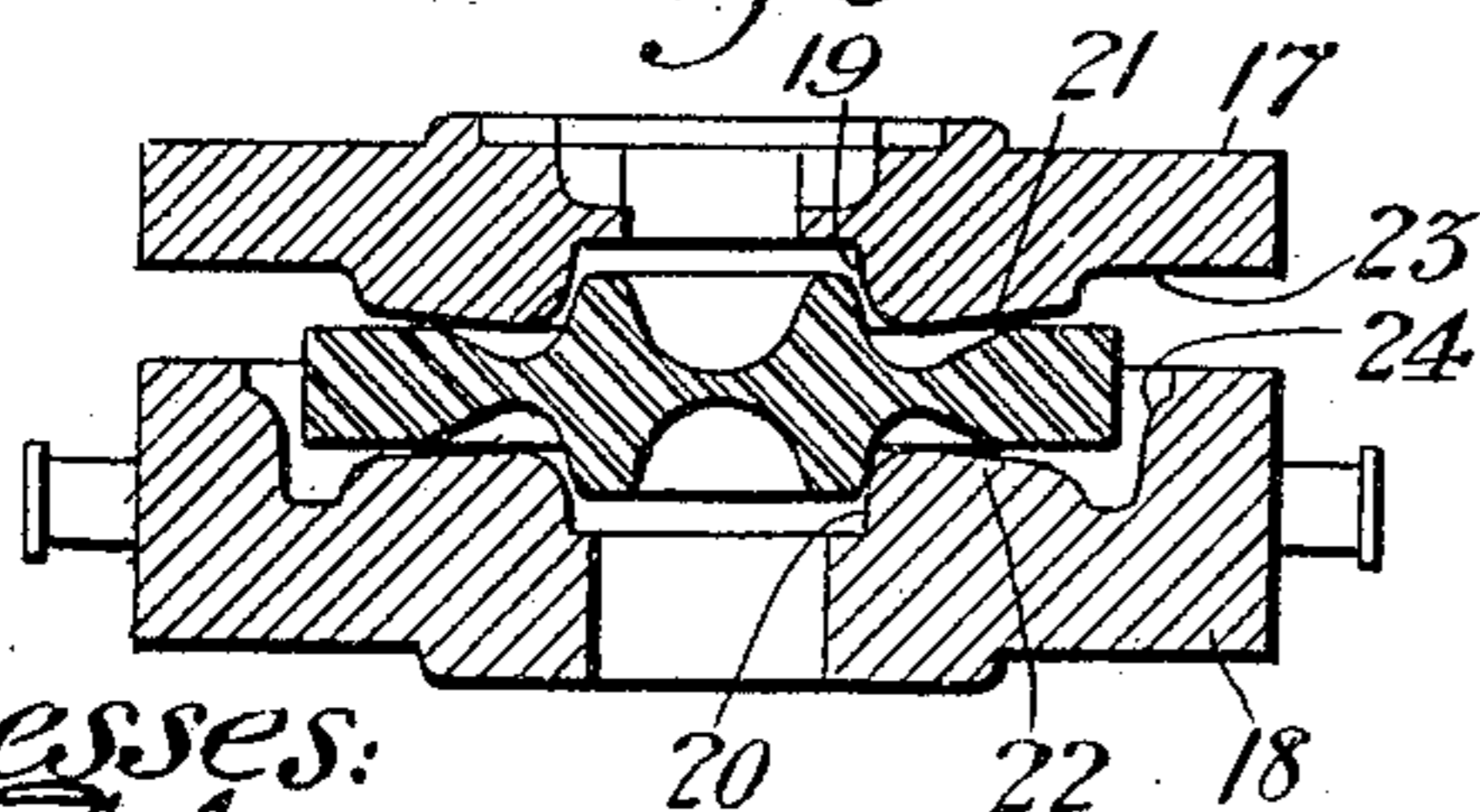
*Fig. 6.*



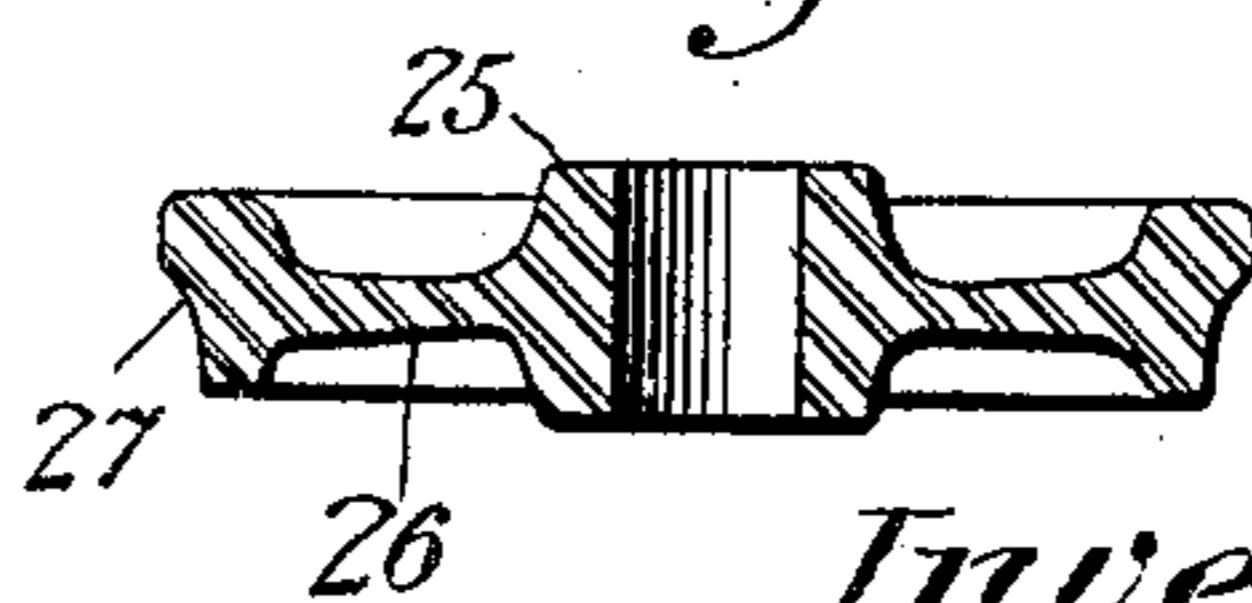
*Fig. 7.*



*Fig. 8.*



*Fig. 9.*



Witnesses:  
A. W. Edlin.  
Ada C. Briggs.

Inventor:  
Charles T. Schoen  
by M. F. Finckel  
Atty.

# UNITED STATES PATENT OFFICE.

CHARLES T. SCHOEN, OF SEWICKLEY, PENNSYLVANIA.

## FORGED CAR-WHEEL.

No. 797,919.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed June 22, 1904. Serial No. 213,725.

*To all whom it may concern:*

Be it known that I, CHARLES T. SCHOEN, a citizen of the United States, residing at Sewickley, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Forged Car-Wheels, of which the following is a full, clear, and exact description.

The object of this invention is to produce a forged car-wheel from a rolled slab or billet, preferably of steel.

A rectangular or square slab or billet is subjected to the action of dies by which opposite angles are successively reduced to segments of circles until a circular blank is produced, and this circular blank is thereafter subjected to the action of a series of dies whereby, first, the hub and the adjacent portions of the web are produced, and, second, the hub, web, and flanged tread are formed, the hub being finished by punching out the axle-hole. A finished wheel may be produced in this way or a wheel-blank may be made and subsequently finished by rolling and getting the flange with the exact contour of the tread in a boring-machine or other suitable apparatus.

In the accompanying drawings, illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 represents in edge and plan view a slab or billet suitable for the purposes of this invention. Fig. 2 is an elevation of a pair of dies with the slab or billet in position for treatment. Fig. 3 is an edge view of Fig. 2. Fig. 4 is a plan view, and Fig. 5 is an edge view, of a blank produced in the dies of Figs. 2 and 3. Fig. 6 is a vertical section of the first-operation dies for treating the blank of Figs. 4 and 5. Fig. 7 is a plan view of the blank after treatment in the dies of Fig. 6. Fig. 8 is a vertical section of a pair of dies for reducing the blank of Fig. 7 to the article shown in Fig. 9. Fig. 9 is a cross-section of the product of the dies of Fig. 8.

The blank 1 is a flat rectangular slab or billet of steel or other suitable metal which is placed between a pair of dies 2 3, having segmental matrices 4 and 5, which are capable of acting upon opposite angles of the

blank and reducing them to segments of circles, after which the blank is turned in the same dies with the other and unreduced angles in the matrices and acted upon by the dies, and these operations are repeated as often as may be necessary to reduce the blank to the circular form shown in Figs. 4 and 5 and designated 6. The blank 6 is then subjected to the action of a pair of dies 7 and 8. The die 7 has an acorn-shaped projection 9 and a surrounding annular projection 10, and the lower die 8 is provided with similar projections 11 and 12, respectively, so that when these dies are brought to bear upon the blank 6 the incipient hub 13 and the web portion 14 are formed, the hub being closed by the web 15. The blank 16, Figs. 6 and 7, as it comes from the dies 7 8 is then subjected to the action of a pair of dies 17 and 18, having, respectively, the hub-receiving cavities 19 and 20, the web-forming projections 21 22, and the flanged tread-forming flat 23 and cavity 24, so that when these dies are brought together about the blank 16 the hub 25, Fig. 9, is practically externally finished, as is also the web 26 and the flanged tread 27.

As shown in Fig. 8, the dies 17 18 are provided with central perforations for the passage of a punch for punching out the hub-closing web 15.

By the dies described a wheel may be produced in a finished condition, or a wheel-blank may be produced requiring some rolling to finish its web and tread, or a wheel may be produced in which the only finishing necessary is to bore or turn off the flanged tread.

Of course the blank is treated in a heated condition.

The finished article shows preceptibly, especially about the hub and parts of the web adjacent to the hub, the die-forging operation on a rolled blank and is easily distinguishable from wheels made by hammering. The ductility of the rolled blank from which the wheel is made renders the wheel distinguishable by physical tests from those made of cast blanks and fagot-blanks, the metal being homogeneous and free from pipings, seams, and other defects incident to such stock.

The process herein described is divided out of this case conformably to the requirement of the Patent Office, and has been included in my case filed February 28, 1905, Serial No. 247,684.

What I claim is—

A wrought-metal car-wheel, die-forged from a wrought blank, and having a punched hub, a web and a tread, the hub and the web

adjacent to the hub exhibiting the die-forging operation.

In testimony whereof I have hereunto set my hand this 21st day of June, A. D. 1904.

CHARLES T. SCHOEN.

Witnesses:

HELEN WOLFE,  
W. H. SCHOEN.