

No. 746,538.

PATENTED DEC. 8, 1903.

H. V. LOSS.  
CAR WHEEL.

APPLICATION FILED MAR. 7, 1902.

NO MODEL.

Fig. 6.

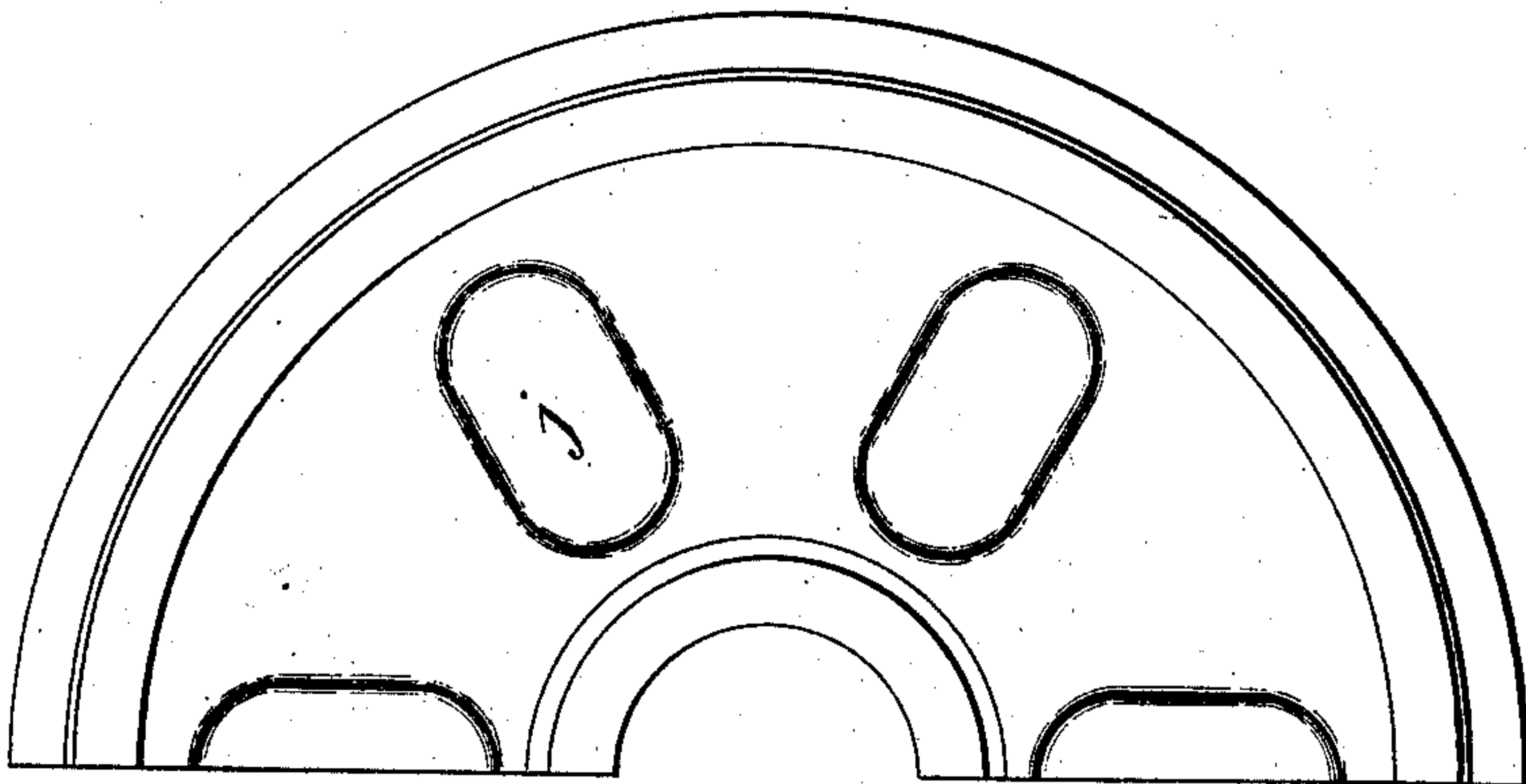


Fig. 5.

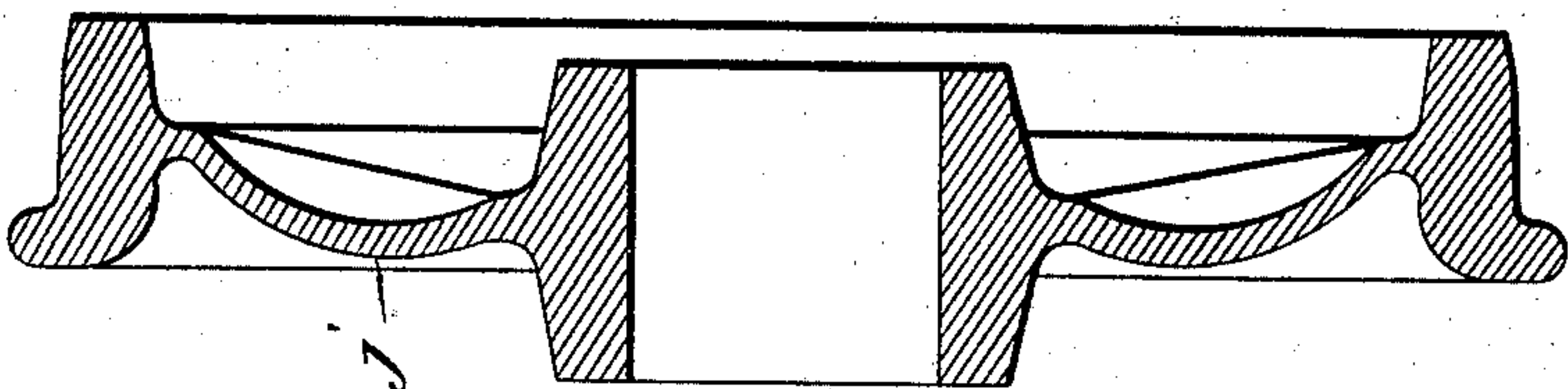


Fig. 4.

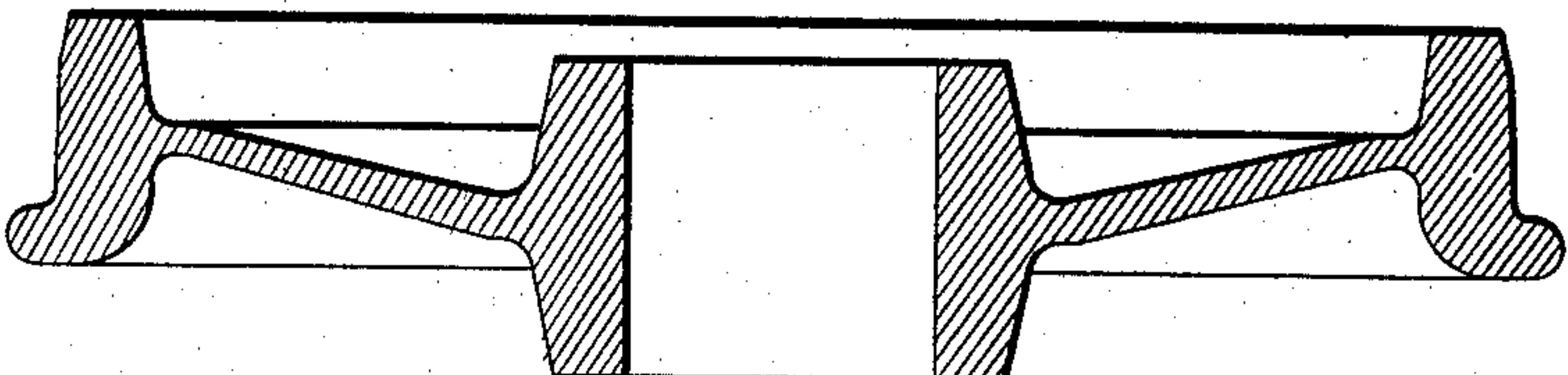


Fig. 3.

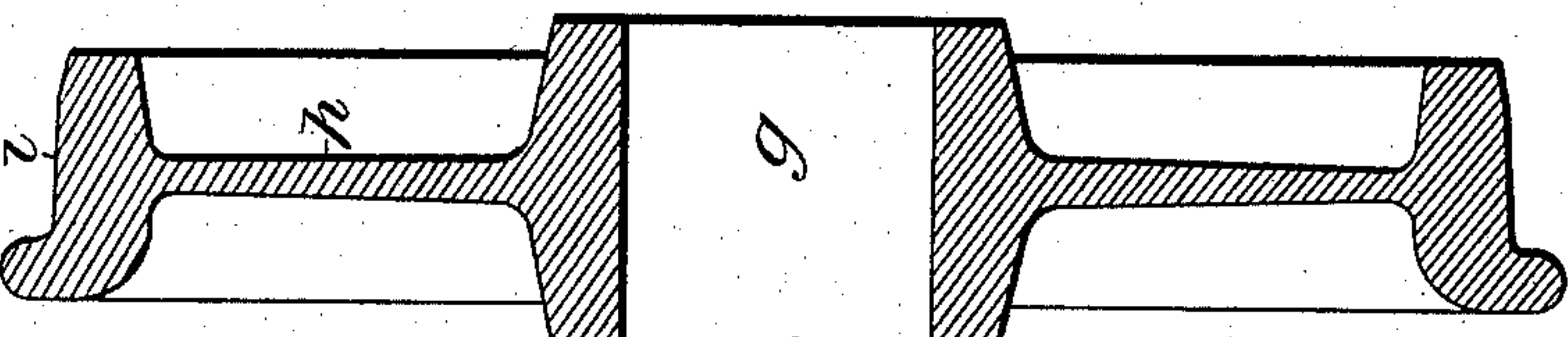


Fig. 2.

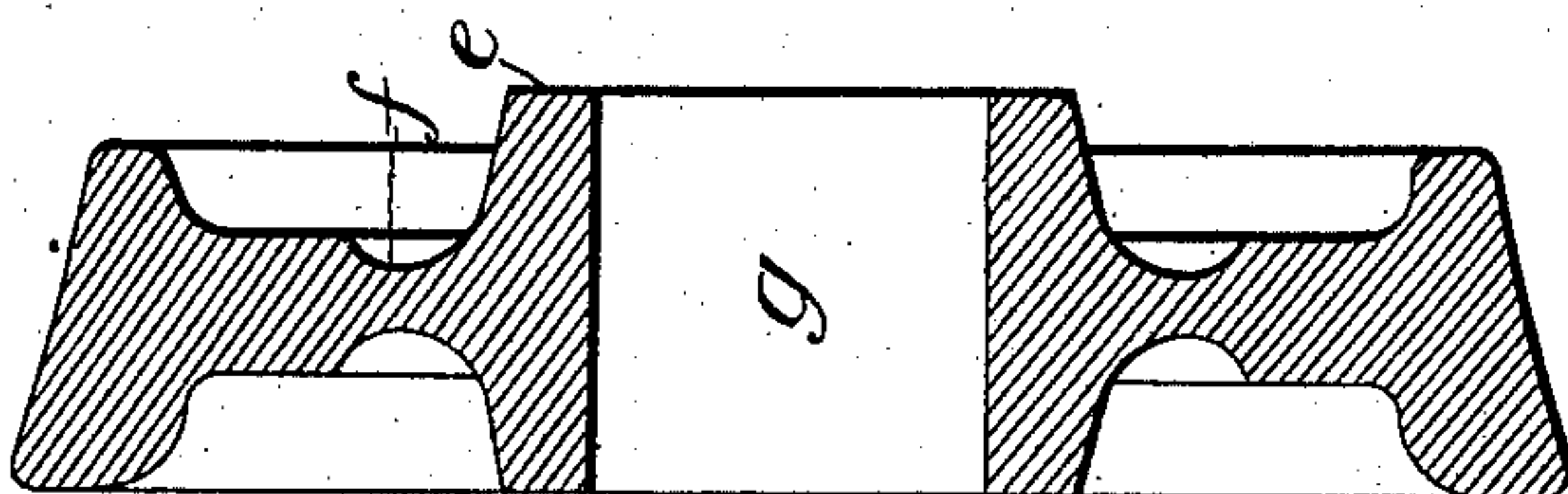
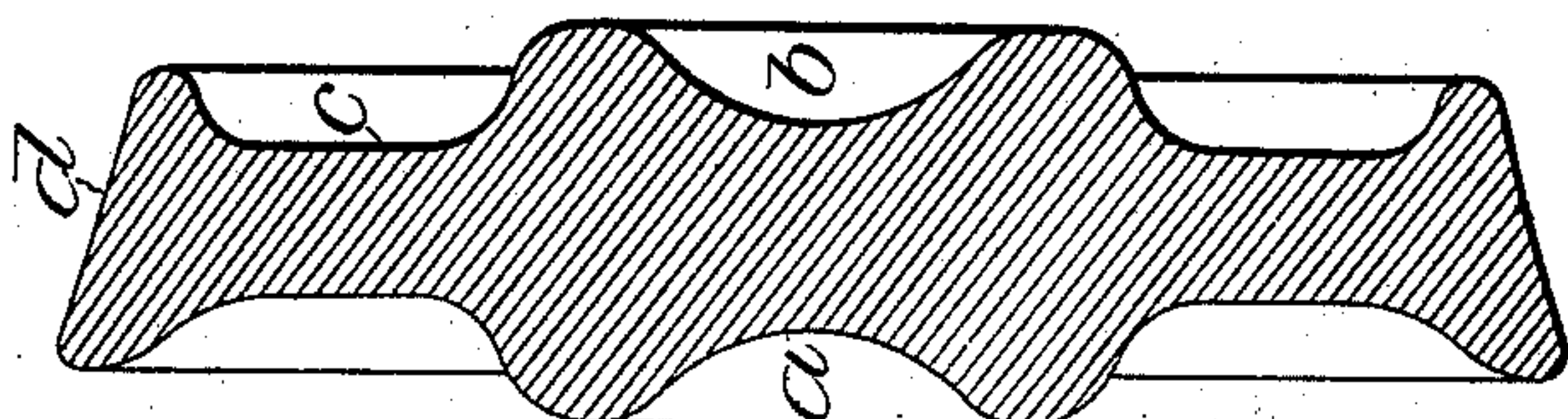


Fig. 1.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## CAR-WHEEL.

SPECIFICATION forming part of Letters Patent No. 746,538, dated December 8, 1903.

Application filed March 7, 1902. Serial No. 97,199. (No model.)

*To all whom it may concern:*

Be it known that I, HENRIK V. LOSS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Car-Wheels, of which the following is a full, clear, and exact description.

The object of this invention is to produce in effect a wrought car-wheel in one piece and of standard dimensions and conformation.

In carrying out my invention in its preferred form I first form a circular blank or ingot of cast-steel more or less approximating the shape of a car-wheel and of greater thickness but less diameter than the finished wheel and then rendering the same plastic by heat form the hub by forging, as by means of a die-press, and punch the axle-hole therein and start the formation of the web. The blank after this first forging treatment is then subjected to a further forging operation, as by means of roller-dies, to draw out the web and form the flanged tread, and then the thus-produced wheel is subjected to a bending action for coning the web or giving it the proper dish and effecting the relative arrangement of the hub, web, and tread or rim.

The invention consists of a wrought-steel wheel constructed as hereinabove described and as hereinafter more particularly set forth and claimed.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a conventional blank in cross-section. Fig. 2 illustrates in cross-section the result of the first operation. Fig. 3 is a cross-section showing the wheel as it comes from the roller-forging operation. Fig. 4 is a cross-section showing one form of finished dished wheel. Fig. 5 is a cross-section showing another form of finished wheel; and Fig. 6 is a plan view of half of said wheel, Fig. 5.

I first produce, preferably by casting, a blank or ingot *a* of steel, of approximately

the shape of a car-wheel and of substantially the form indicated in Fig. 1, in which there is an embryotic hub *b*, web *c*, and flanged tread *d*. This blank is heated to a red heat or beyond, and then by suitable means, such as a die-press, the hub *e* is forged, together with the beginning *f* of the web. The axle-opening *g* is then punched, preferably in the same die-press. The heated blank is then subjected to the action of forging-rolls, which serve to draw out and form the web *h* and the flanged tread *i*, substantially as shown in Fig. 3, after which the thus-formed wheel is subjected to pressure, so as to give a dish thereto, as indicated in Fig. 4 or as indicated Figs. 5 and 6, both to dish it and form in the web the depressions *j*. In any case the dishing imparts a certain elasticity to the wheel, which eases the wheel in meeting irregularities on the rails and enables it to take up shocks, and, moreover, it serves to distribute uniformly the pressure exerted in setting the wheel on its axle. It will be observed also that the web joins the hub and the rim centrally notwithstanding the dishing, and hence the distribution of load stresses is best maintained.

In a concurrent application for patent for hydraulic presses I have shown an apparatus by means of which the blank of Fig. 1 may be transformed into the device of Fig. 2, and a similar press may be used with appropriate dies for dishing the wheel, and in another concurrent application for patent for machines for rolling car-wheels I have shown an apparatus by means of which the web may be drawn and the flanged tread of the wheel formed; but I do not limit my invention to the use of these two special machines and refer to them here merely as illustrating means by which the invention may be practiced.

The process herein set forth is reserved as the subject of my application for patent filed July 21, 1902, Serial No. 116,439, same being a division hereof in accordance with the requirement of the Patent Office.

What I claim is—

1. A one-piece, forged and rolled steel wheel, having the hub and approximately one-fourth of the adjacent web forged, and the axle-hole punched, and the remainder of the web and the flanged rim rolled to a finish.
- 5 2. A one-piece, forged, rolled and dished steel wheel, having the hub and approximately one-fourth of the adjacent web forged, and the axle-hole punched, and the remain-

der of the web and the flanged rim rolled to a finish.

In testimony whereof I have hereunto set my hand this 25th day of February, A. D. 1902.

HENRIK V. LOSS.

Witnesses:

CHAS. T. SCHOEN,  
J. G. GLADING.