No. 757,819. PATENTED APR. 19, 1904.

H. V. LOSS.

PROCESS OF MAKING CAR WHEELS.

APPLICATION FILED JULY 21, 1902.

NO MODEL.

Fig. 6.

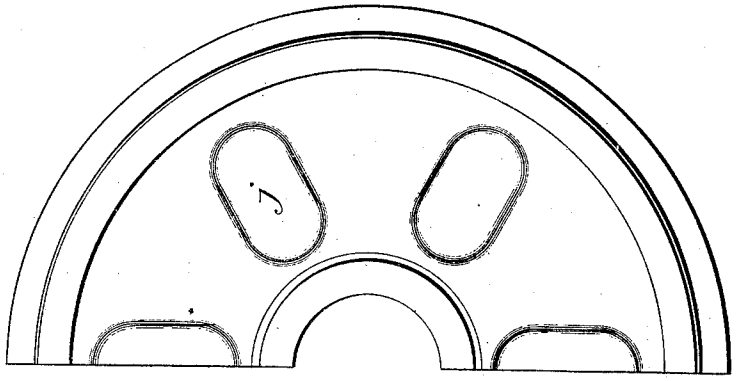


Fig. 5.

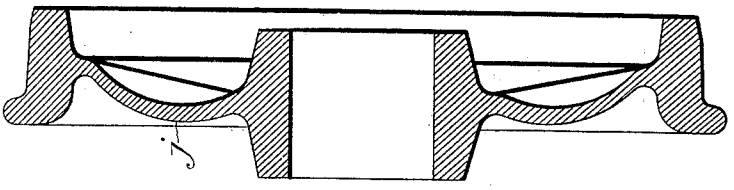


Fig. 4.

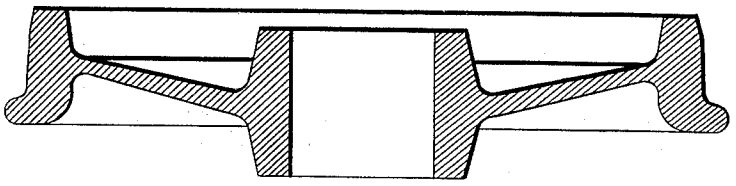


Fig. 3.

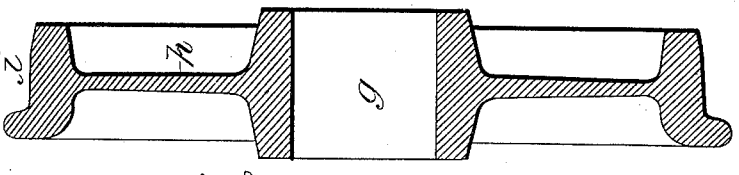


Fig. 2.

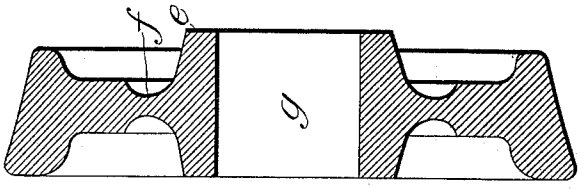
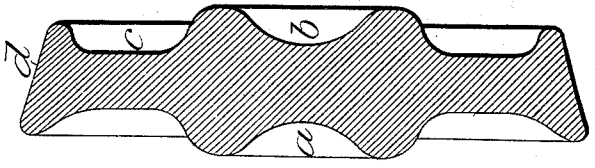


Fig. 1.



Inventor

Henrik V. Loss,

by Wm. F. Linnell

Attorney

Witnesses

C. H. Walker.

E. A. Linnell.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 757,819. Patented April 19, 1904.

UNITED STATES PATENT OFFICE.

HENRIK V. LOSS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO CHARLES T. SCHOEN, OF PHILADELPHIA, PENNSYLVANIA.

PROCESS OF MAKING CAR-WHEELS.

SPECIFICATION forming part of Letters Patent No. 757,819, dated April 19, 1904.

Original application filed March 7, 1902, Serial No. 97,199. Divided and this application filed July 21, 1902. Serial No. 116,439.

(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 Processes of Making 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 and 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, all as I will proceed now more particularly to set forth and finally claim.

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 in 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 my Patent No. 710,286, dated September 30, 1902, for hydraulic forging-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 my Patent No. 706,674, dated August 12, 1902, 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.

This case is divided out of my case filed March 7, 1902, Serial No. 97,199, (now Patent No. 746,538, dated December 8, 1903,) in accordance with the requirement of the Patent Office.

What I claim is—

1. The process of making car-wheels, which consists in heating a steel blank of greater thickness and less diameter than the finished

wheel and of approximately the shape thereof, and while plastic forging the hub and adjacent portions of the web and while maintaining said hub and adjacent portions of the web in their forged shapes punching the axle-hole, and then roller-finishing the remainder of the web and flanged tread.

2. The process of making car-wheels, which consists in subjecting a cast-steel blank of greater thickness and less diameter than the finished wheel and of approximately the shape thereof to pressure, and thereby forming the hub and the web adjacent to the hub and while maintaining said hub and adjacent portions of the web in their forged shapes punching the axle-hole in the hub, then roller-finishing the remainder of the web and the flanged tread; and finally dishing the wheel, all in one heat.

3. The process of making car-wheels, which consists in heating a steel blank of greater thickness and less diameter than the finished wheel and of approximately the shape thereof, and while plastic forging the hub and adjacent portions of the web and simultaneously punching the axle-hole and then roller-finishing the remainder of the web and flanged tread.

In testimony whereof I have hereunto set my hand this 16th day of July, A. D. 1902.

HENRIK V. LOSS.

Witnesses:
M. J. MINNICK,
F. M. BAKER.