

No. 736,190.

PATENTED AUG. 11, 1903.

T. B. ZELL.

CAST STEEL WHEEL.

APPLICATION FILED MAY 25, 1901.

NO MODEL.

fig. 1

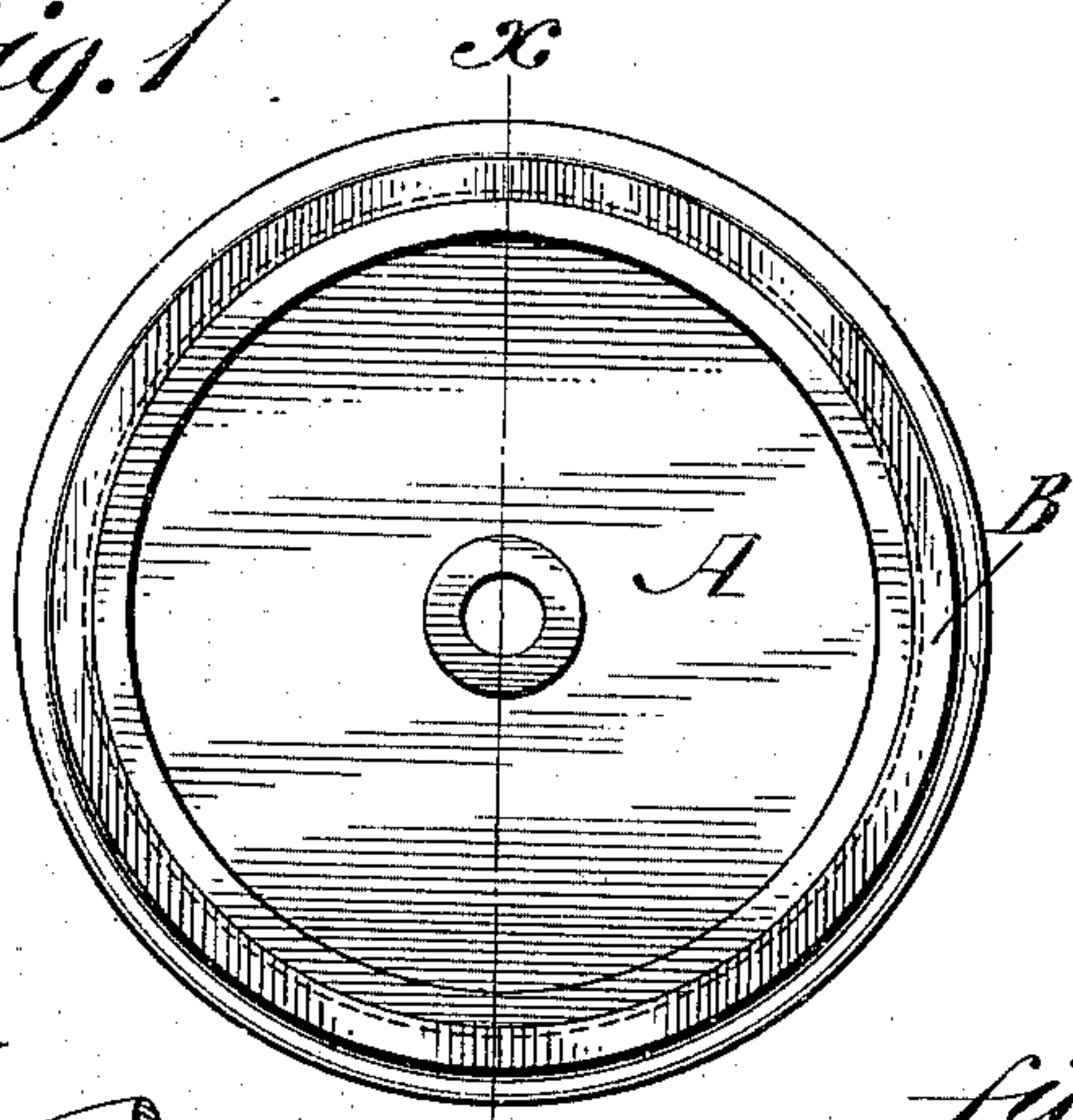


fig. 2

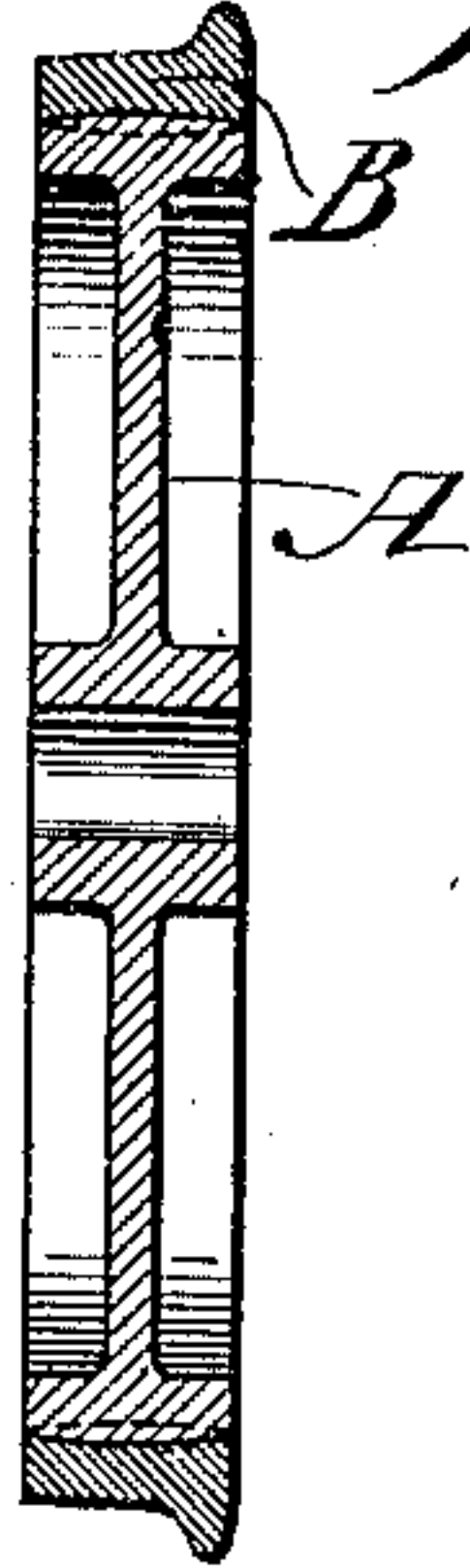


fig. 4

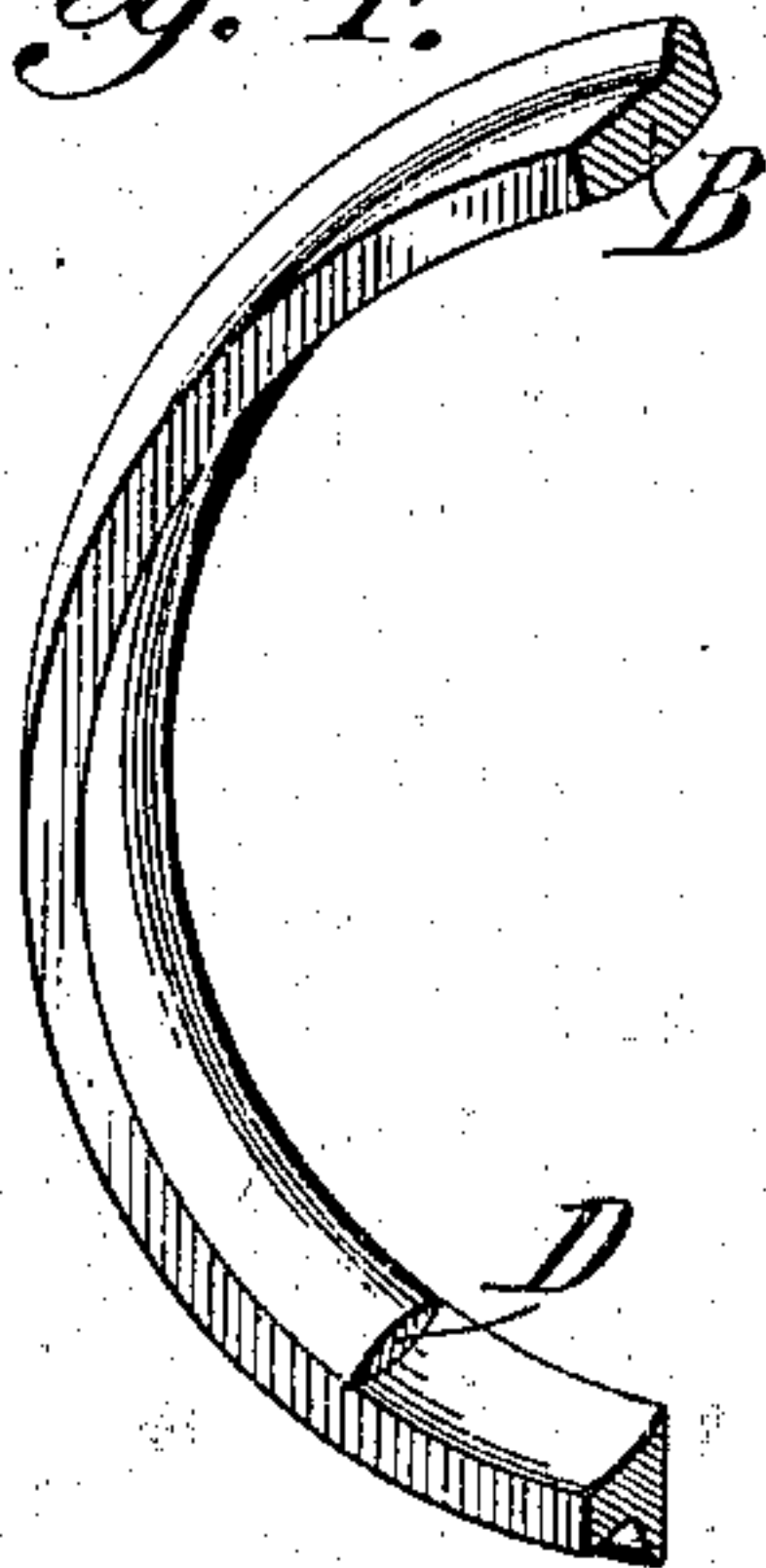


fig. 3

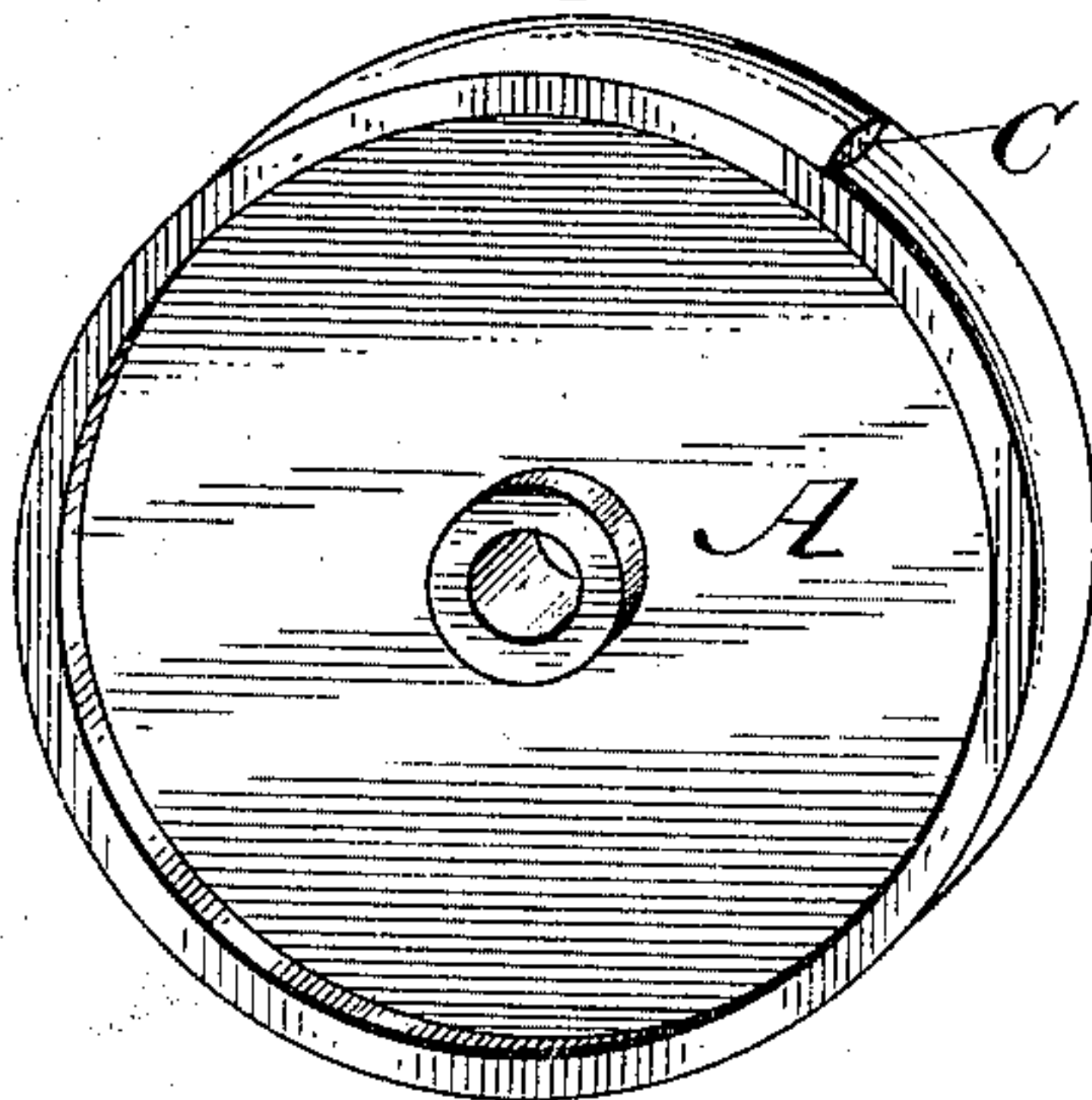


fig. 7

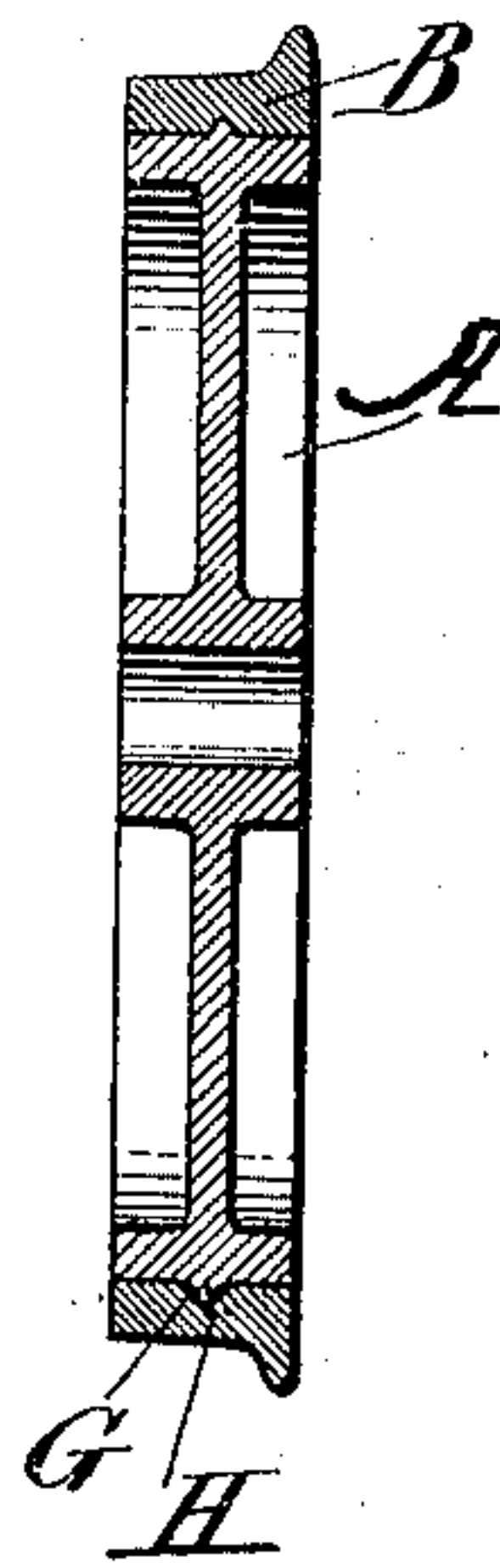


fig. 5

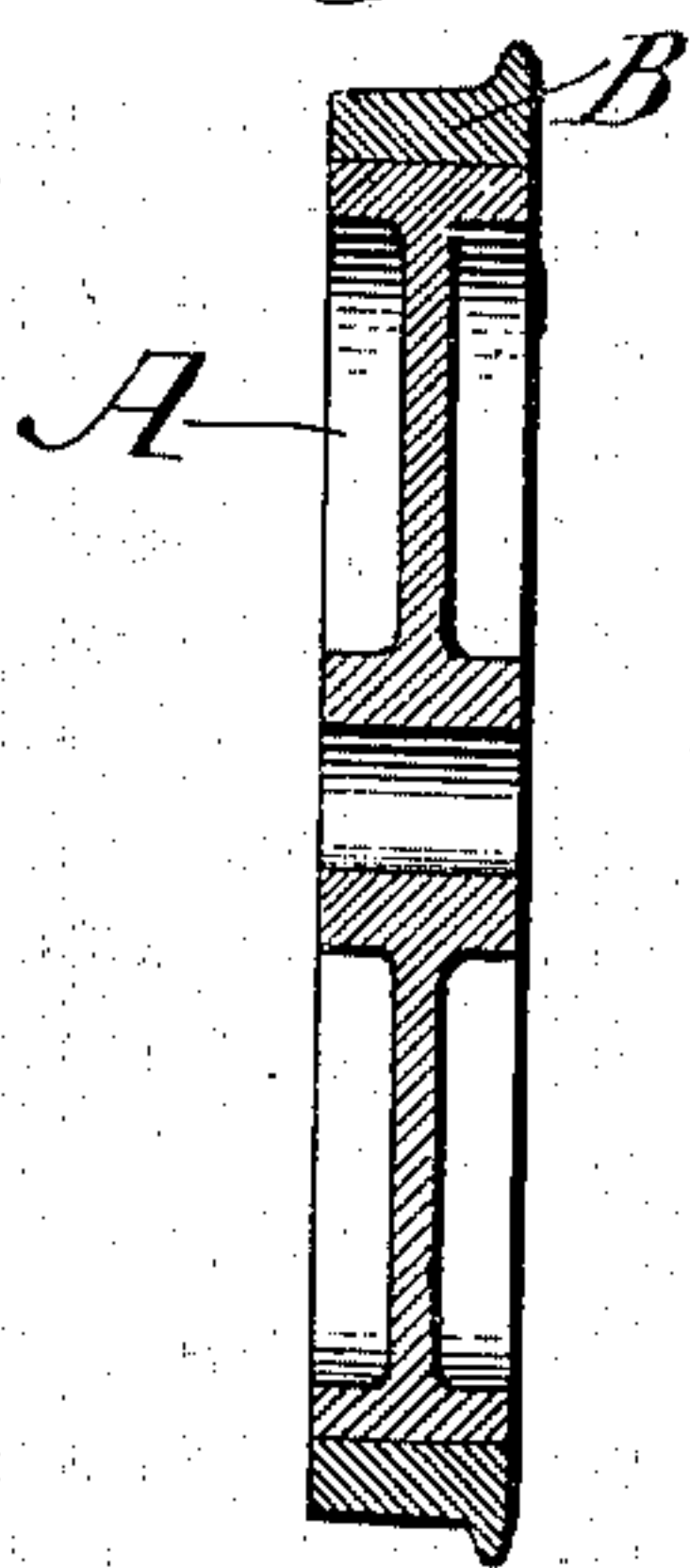


fig. 6

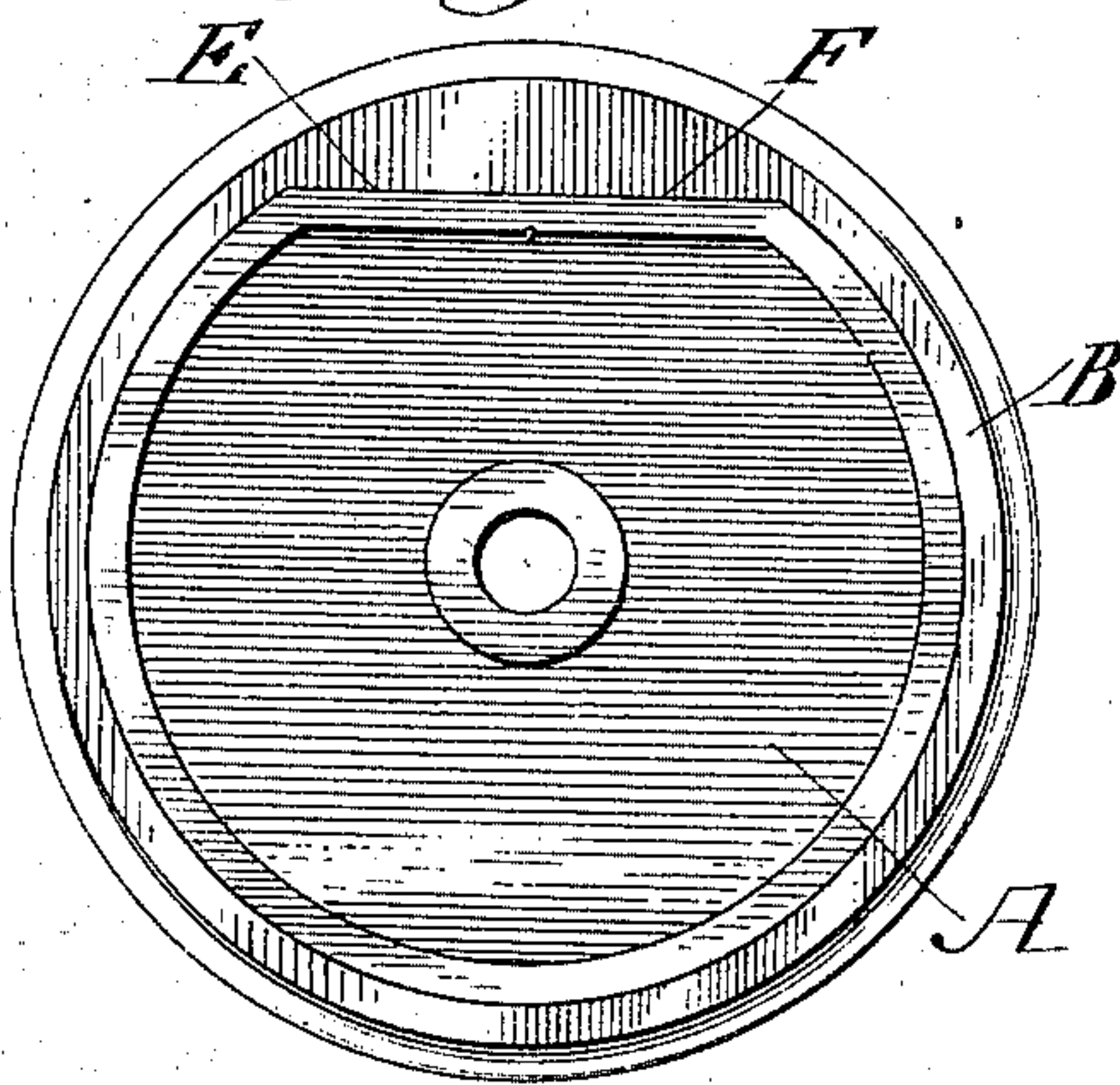
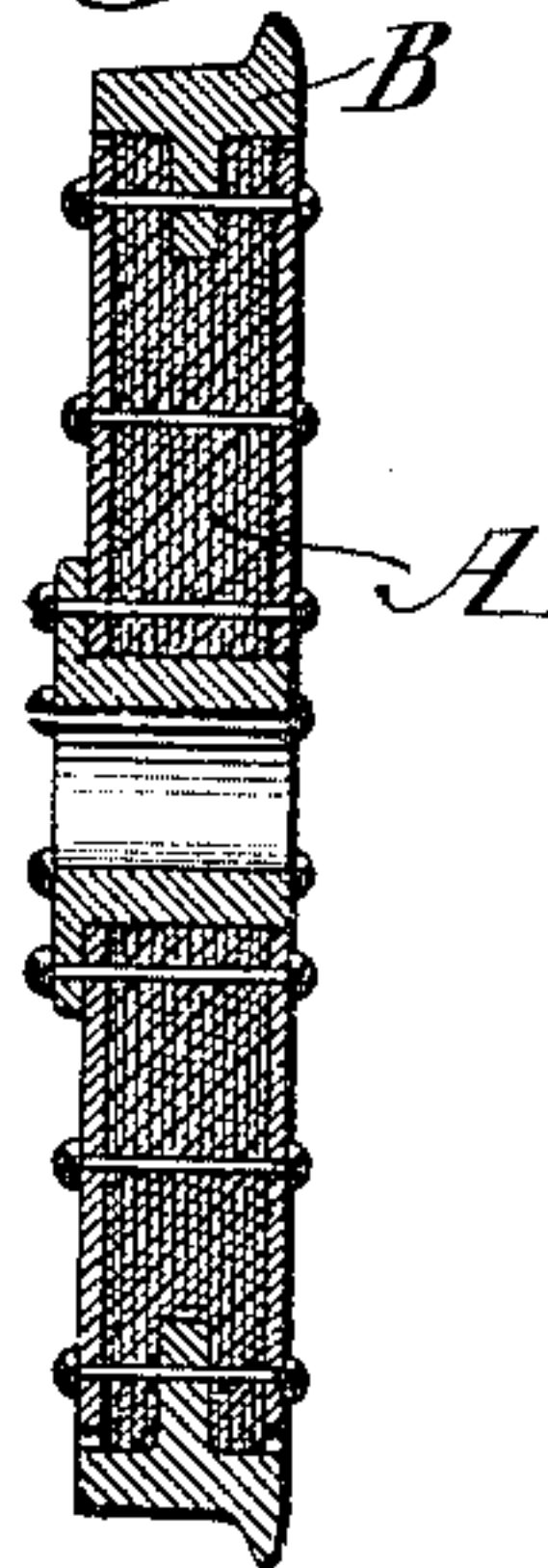


fig. 8



Witnesses

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THOMAS BURD ZELL, OF READING, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO FREDERICK BALDT, SR., OF CHESTER, PENNSYLVANIA.

CAST-STEEL WHEEL.

SPECIFICATION forming part of Letters Patent No. 736,190, dated August 11, 1903.

Original application filed April 30, 1901, Serial No. 58,114. Divided and this application filed May 25, 1901. Serial No. 61,890. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BURD ZELL, a citizen of the United States, residing in the city of Reading, county of Berks, State of Pennsylvania, have invented a new and useful Improvement in Cast-Steel Wheels, of which the following is a specification.

My invention consists of a cast-steel wheel, and is a division of my application, Serial No. 58,114, filed April 30, 1901.

The accompanying drawings illustrate some of the different forms of wheels embodying my invention that may be made in accordance with my method.

Figure 1 represents a side elevation of a wheel embodying my invention. Fig. 2 represents a cross-section thereof, taken on line *xx*, Fig. 1. Fig. 3 represents a perspective view of a portion of the wheel-center. Fig. 4 represents a perspective view of a portion of the rim. Figs. 5, 6, 7, and 8 represent modifications of my invention.

Similar letters of reference indicate corresponding parts in the figures.

My method is adapted for the production of a built-up wheel in which the peripheral portion or rim is made of hard cast-steel, such as high carbon, nickel, manganese, or chrome steel—that is to say, of steel that is harder than would be desirable for a wheel-center when the entire wheel is made of cast-steel, the same hardness of the rear rim being retained if the steel wheel-center is made of other than cast-steel.

In accordance with my method the rim is cast separately from the wheel-center, and in the cases where the wheel-center is of cast-steel such rim and wheel-centers are of course cast in separate heats.

My improved method therefore consists in casting the rim around the wheel-center after the latter has been formed and either while the latter is still hot, whereby a practical weld results, or it may be cast around the wheel-center after the latter is cold, or, in the case of wheel-centers that are made of paper or analogous materials, after the latter is formed. I thus obtain a wheel in which the peripheral portion formed by the rim is

of steel of the requisite hardness, but in which the wheel-center can be made of any desirable material.

For the purpose of illustration I have shown in the drawings different forms of car-wheels all produced by my method, which will now be specifically referred to, although it is understood that a car-wheel is selected for the purpose of illustration only.

In the construction of a car-wheel it is desired that only the flange and tread of the wheel shall be of hard steel, and in the drawings, A designates the wheel-center, and B the rim forming the flange and tread of the wheel. The outer face of the wheel-center and the inner face of the rim may be straight, as shown in Fig. 5, and although the joint, due to casting the rim around the wheel-center, as above described, will be sufficient when these faces are straight, as shown in Fig. 5, yet I propose in some cases to employ interlocking means between the wheel center and rim.

In Fig. 2 I have shown the outer face of the wheel-center convex and inner face of the rim concave, although, as shown on dotted line, the convexity and concavity of these parts may be reversed.

In Figs. 3 and 4 I have shown further interlocking means designed to resist any tendency to creeping or relative rotary movement between the wheel-center and the rim, which consists in making the outer face of the wheel-center concave for one half of its circumference and convex the other half and correspondingly forming the inner face of the rim. It will thus be seen that shoulders C are formed on the wheel-center and shoulders D formed on the rim, which abut when the rim is in place.

In Fig. 6 I have illustrated another way in which the parts can be interlocked to resist any tendency to relative rotation, and this consists in making the outer periphery of the wheel-rim otherwise than circular—for instance, by employing the straight faces E and F, as shown in Fig. 6.

In Fig. 7 I have shown another modification, which consists in forming a groove G in

either the outer face of the wheel or inner face of the rim and a rib H on the other part, said rib H entering said groove, and in said Fig. 7 the rib is shown as being formed on the wheel-center and the groove on the rim.

In Fig. 8 I have shown a car-wheel formed in accordance with my invention in which the wheel-center is formed of paper, with the rim suitably cast therearound, as shown.

It will thus be seen that I provide a wheel in which the peripheral portion only, or in the case of a car-wheel only the flange and tread, is made of hard cast-steel of the kind referred to, while the wheel-center may be of soft steel of approved quality or of other desired material, and in the case of a built-up wheel, in which both the wheel center and rim are of cast-steel, by casting the wheel center and rim in separate heats I am enabled to determine with certainty the equality of steel forming the different parts, which of course is a highly advantageous result.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. A built-up cast-steel wheel having a cast-steel rim and a cast-steel wheel-center, said rim being of harder steel than the steel of the wheel-center and being cast around the latter.

2. A built-up cast-steel wheel having a cast-steel rim and wheel-center, said rim and wheel-center being cast in separate heats and said rim being cast around the wheel-center, and said center being of softer cast-steel and possessing greater ductility than the steel of the rim.

3. A built-up cast-steel car-wheel having a cast-steel rim upon which is formed the flange and tread, and a cast-steel wheel-center, said cast-steel rim being of harder steel than the cast-steel wheel-center and being cast around the latter.

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Witnesses:

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