

No. 817,292.

PATENTED APR. 10, 1906.

M. L. AMANN.
TROLLEY WHEEL.

APPLICATION FILED MAR. 10, 1904.

Fig. 1.

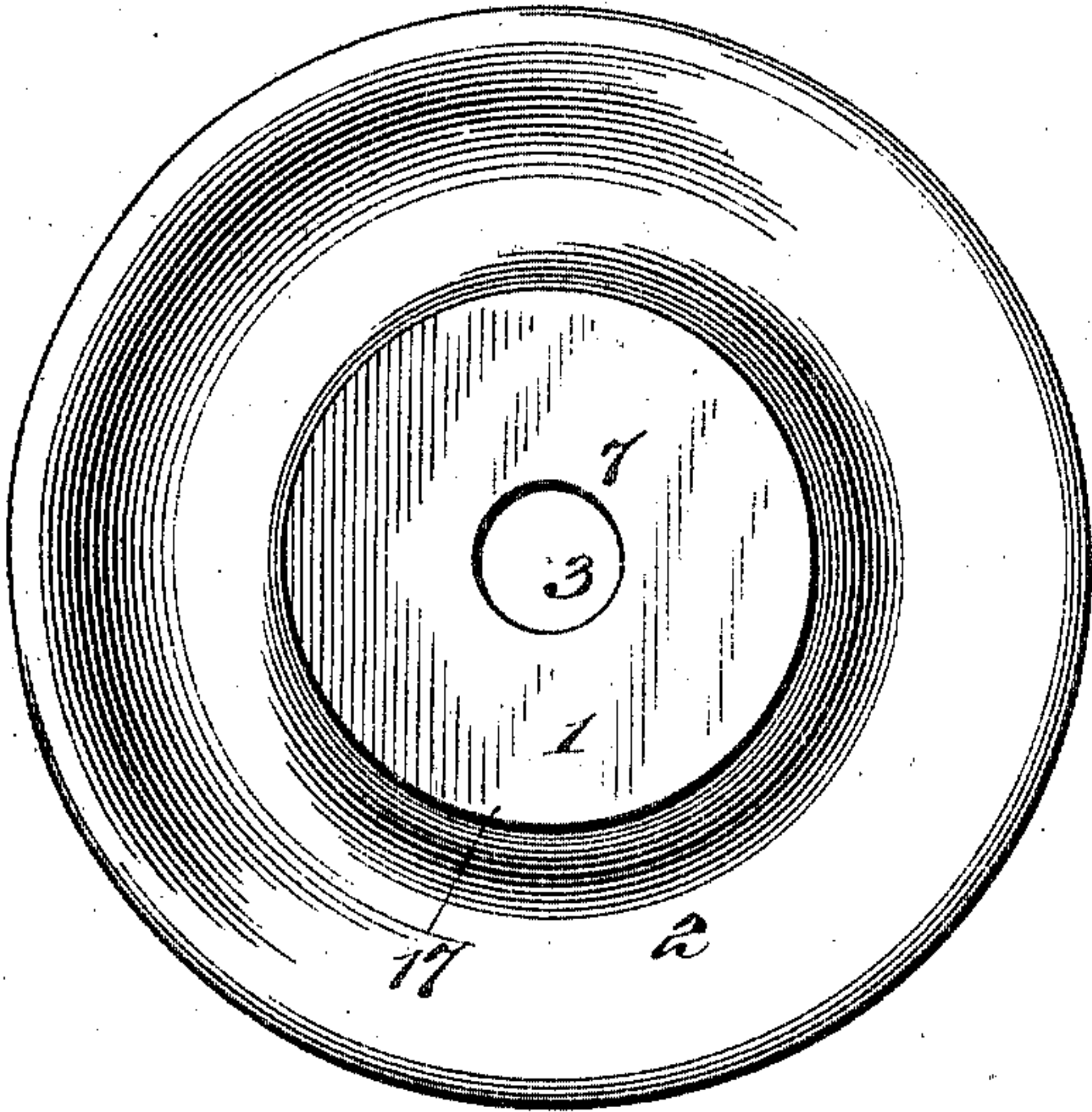


Fig. 2.

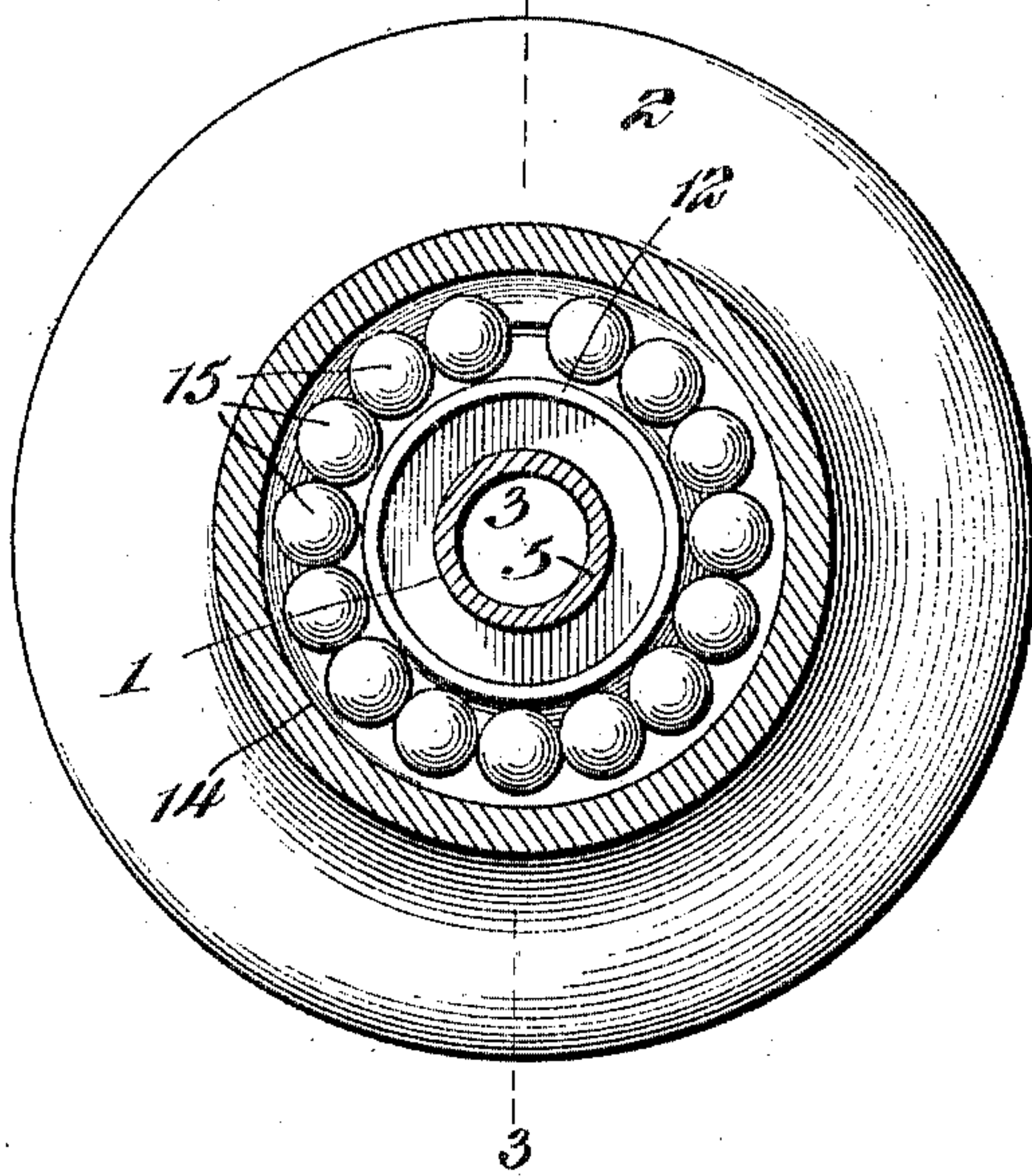


Fig. 3.

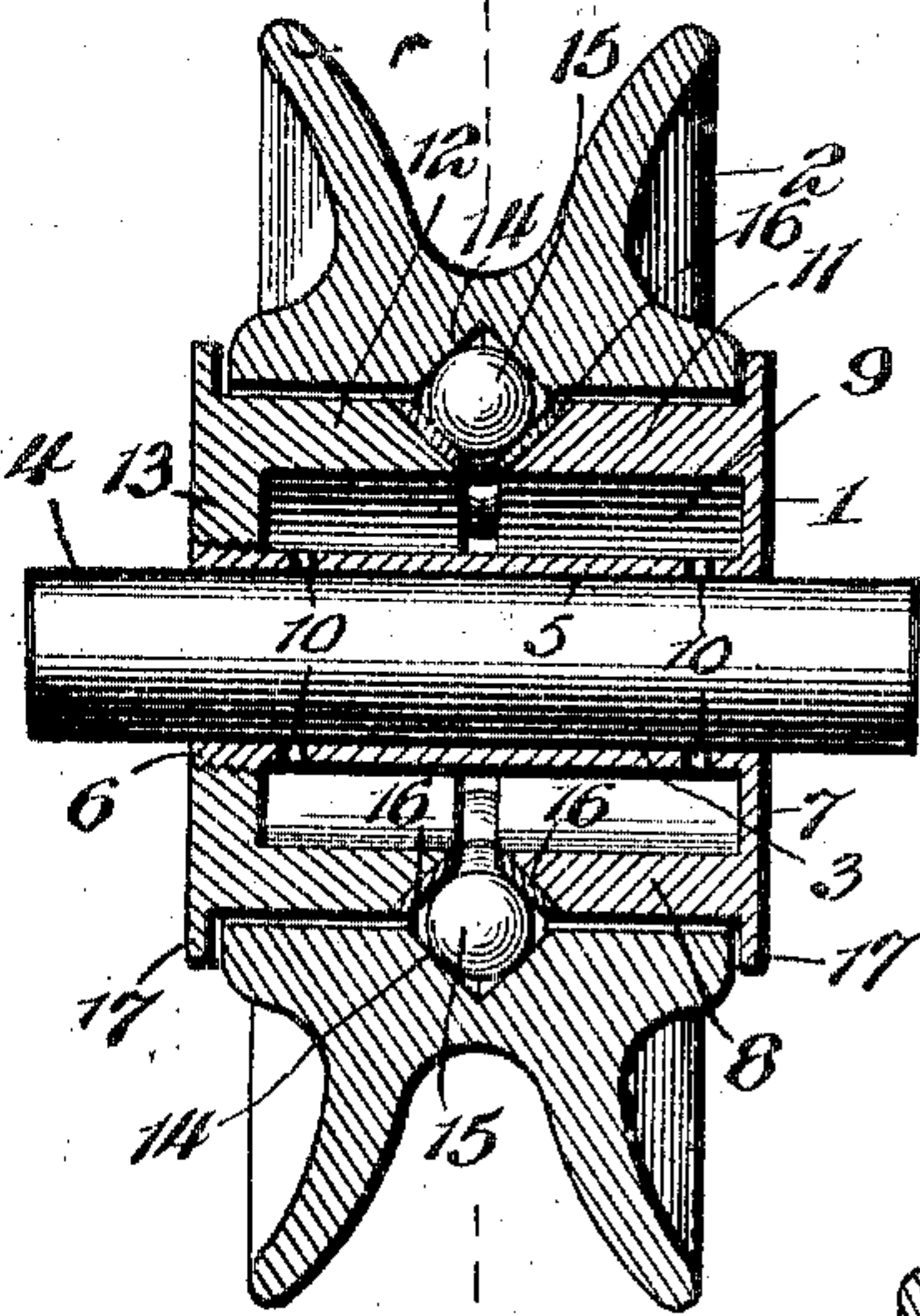
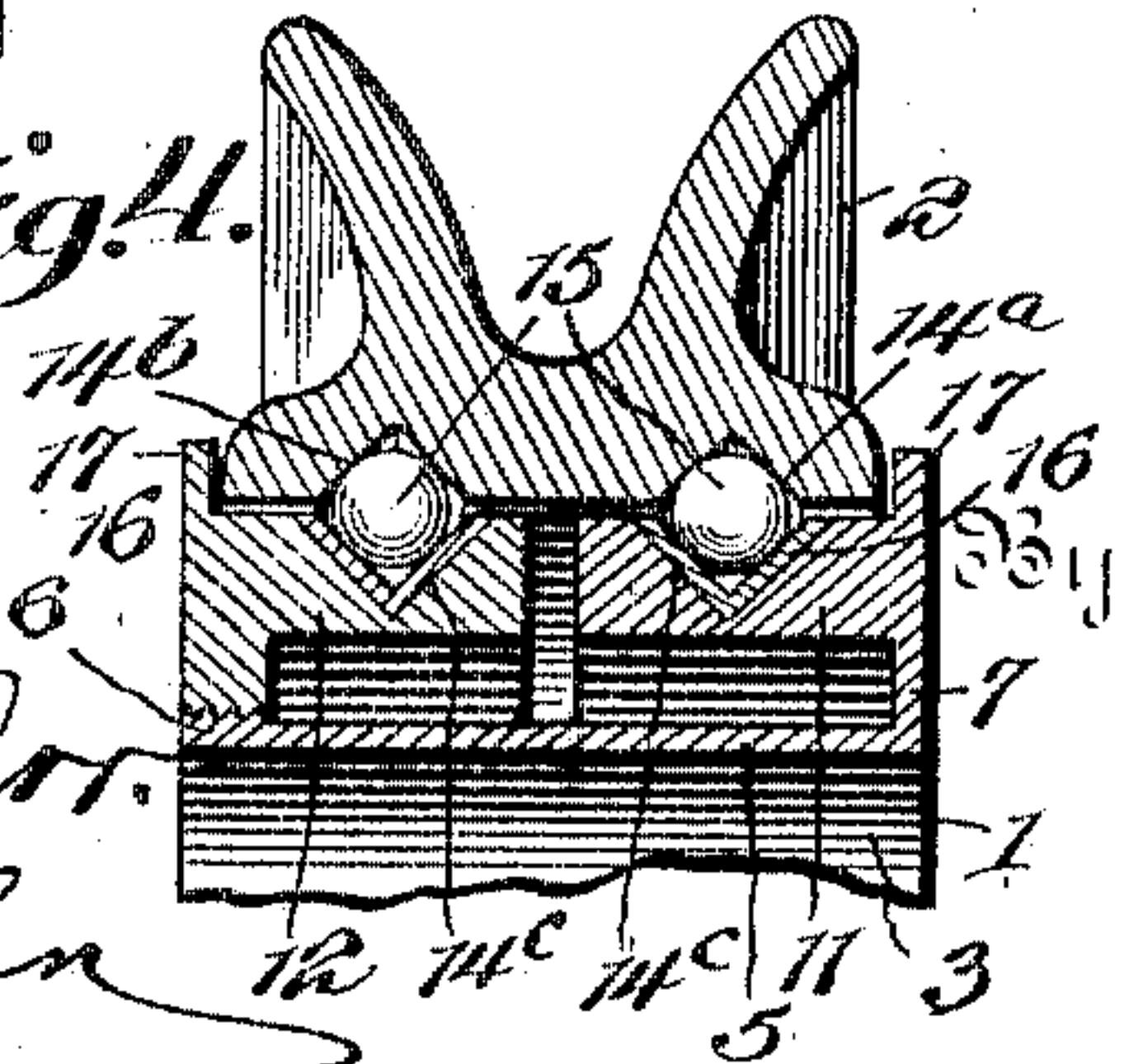


Fig. 4.



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MARTIN LUTHER AMANN, OF WARREN, PENNSYLVANIA, ASSIGNOR OF
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TROLLEY-WHEEL.

No. 817,292.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed March 10, 1904. Serial No. 197,553.

To all whom it may concern:

Be it known that I, MARTIN LUTHER AMANN, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented a new and useful Trolley-Wheel, of which the following is a specification.

My present invention relates to a novel wheel adapted for various uses, but designed with special reference to its use as a trolley-wheel for taking the current from a feed-wire for the motor of an electrically-propelled vehicle.

The object of the invention is to produce a self-lubricating antifrictional wheel of simple, durable, and efficient construction and capable of being mounted in any trolley-harp of standard make or design.

A further object of the invention is to construct the wheel in separate concentric sections, the inner section being mounted upon an axle and including an oil-chamber arranged to lubricate the bearing between the members as well as the bearing between the axle and the inner member, so that in the event of derangement or binding of the outer member, which normally rotates freely, the two members may rotate in unison upon the axle.

Other objects subordinate to those enumerated will appear during the course of the succeeding description of the illustrated structure.

In the accompanying drawings, Figure 1 is a side elevation of a wheel constructed in accordance with my invention. Fig. 2 is a vertical section on the line 2 2 of Fig. 3. Fig. 3 is a diametrical section on the line 3 3 of Fig. 2. Fig. 4 is a sectional view of a portion of a wheel constructed like that shown in Fig. 3, but provided with a double row of balls.

Like numerals of reference are employed to designate corresponding parts throughout the several views.

The wheel comprises relatively movable inner and outer concentric sections 1 and 2, the former having an axial opening 3, through which the axle 4 is passed. In that embodiment of my invention shown in the first three figures of the drawings the axial opening 3 in the inner wheel member is defined by a bearing-sleeve 5, externally threaded at one end, as indicated at 6, and connected by an integral annular web or wall 7 with what

may be termed an "outer bearing-sleeve" 8, encircled by the outer section 2 of the wheel. The inner and outer sleeves 5 and 8 of the inner wheel-section are spaced apart to form an intermediate oil-chamber 9, designed to supply oil to the bearing between the inner and outer wheel-sections and also to the bearing between the inner wheel-section and the axle, the sleeve 5 being provided with oil-openings 10.

The outer bearing-sleeve 8 of the inner wheel-section 1 comprises a pair of separable members 11 and 12, the former being preferably, though not necessarily, integral with the sleeve 5 and the wall 7 and the latter having an internally-threaded annular flange 13 screwed upon the externally-threaded extremity of the sleeve 5. The members 11 and 12 are disposed with their proximate ends separated by a slight interval and are beveled in opposite directions to form oppositely-inclined walls of a ball-race, the outer walls of which are defined by a ball-groove 14 in the interior face of the outer wheel-section 2. Within the ball-race thus formed are disposed a series of antifrictional balls 15, preferably of steel, and contacting with steel wear-rings 16, with which the beveled end faces of the members 11 and 12 are provided. Obviously rollers or other antifriction bearing elements may be substituted for the balls.

Lateral movement of the outer wheel-section 2 is prevented by the balls 15; but for the sake of further assurance the members 11 and 12 are provided at their outer ends with annular flanges 17, opposed to the opposite sides of the section 2.

It will now appear that not only may the outer bearing-sleeve 8 of the inner wheel-section be regarded as composed of separable members, but it may also be said that the inner wheel-section comprises relatively adjustable sections or members, one including the sleeve 5, the wall 7, and the sleeve-section 11, and the other including the sleeve-section 12 and its internal annular flange 13, screwed upon the sleeve 5. Thus by effecting the relative rotation of the sections or members of the inner wheel-section the inner walls of the ball-race may be adjusted to compensate for wear, the balls being thus urged outwardly into engaging relation with the walls of the ball-groove 14 in the wheel-section 2.

Under ordinary conditions the outer wheel-section 2 will rotate freely upon the inner section 1, the interposed ball-bearing being constantly lubricated by the oil escaping from the chamber 9. If, however, derangement or wear of the parts should result in the binding of the outer section 2 upon the inner section 1 the latter will rotate freely upon the axle 4, the bearing between said axle and the sleeve 5 being lubricated by oil passing there-
10 through the openings 10.

In Fig. 4 is shown a wheel constructed in a manner similar to that shown in Fig. 3, except that instead of having a single series of
15 antifriction-balls bearing upon the proximate ends of the members 11 and 12 two series of such balls are provided, and the ball-races are formed by a pair of ball-grooves 14^a and 14^b in the outer wheel-section 2 and a
20 ball-groove 14^c in each of the members 11 and 12.

It is thought that from the foregoing the construction of my wheel and the many advantages accruing from its use will be clearly
25 apparent.

What I claim is—

1. A wheel, comprising inner and outer independently-rotatable members, the inner member including an inner bearing-sleeve
30 and a sectional outer bearing-sleeve connected together to rotate in unison.

2. A wheel, comprising inner and outer independently-rotatable members, the inner member including an inner bearing-sleeve
35 and a sectional outer bearing-sleeve, one section of the outer bearing-sleeve being rigid with the inner sleeve and the other section of the outer sleeve being adjustable on the inner sleeve.

3. A wheel, comprising inner and outer independently-rotary members, the inner member including an inner bearing-sleeve, and a sectional outer bearing-sleeve the sections of
40 which are adjustable toward and from each other.

4. In combination, an axle, and a wheel including an inner member rotatable on the axle and an outer member rotatable on the

inner member, said inner member comprising inner and outer bearing-sleeves separated by
50 an annular cavity and connected together to rotate in unison.

5. In combination, an axle, and a wheel including an inner member rotatable on the axle and an outer member rotatable on the
55 inner member, said inner member comprising inner and outer sleeves spaced apart and connected to rotate in unison, the outer sleeve being composed of relatively adjustable sections.

6. In combination, an axle, and a wheel including an inner member rotatable on the axle and an outer member rotatable on the
60 inner member, the inner wheel being made up of inner and outer bearing-sleeves, the outer sleeve comprising relatively adjustable sections connected to the inner sleeve for rotation therewith, said sections being formed
65 with flanges to confine the outer wheel member in proper position.

7. A trolley-wheel, comprising independently-rotary inner and outer wheel members, the inner member comprising an inner bearing-sleeve and a sectional outer bearing-sleeve,
70 one section of the outer bearing-sleeve being screwed upon the inner bearing-sleeve.

8. A trolley-wheel, comprising independently-rotary inner and outer wheel members, the inner wheel member being made up of separated inner and outer bearing-sleeves,
80 the outer bearing-sleeve comprising separate relatively adjustable sections, both of which are connected to the inner bearing-sleeve and each of which is provided with a flange designed for the retention of the outer wheel
85 member, and antifriction bearing elements interposed between the wheel members and retained between the opposed ends of the sections of the outer bearing-sleeve.

In testimony that I claim the foregoing as
90 my own I have hereto affixed my signature in the presence of two witnesses.

MARTIN LUTHER AMANN.

Witnesses:

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