No. 836,716. PATENTED NOV. 27, 1906.

# G. H. TREADGOLD.

## PNEUMATIC WHEEL.

APPLICATION FILED DEC. 16, 1905.

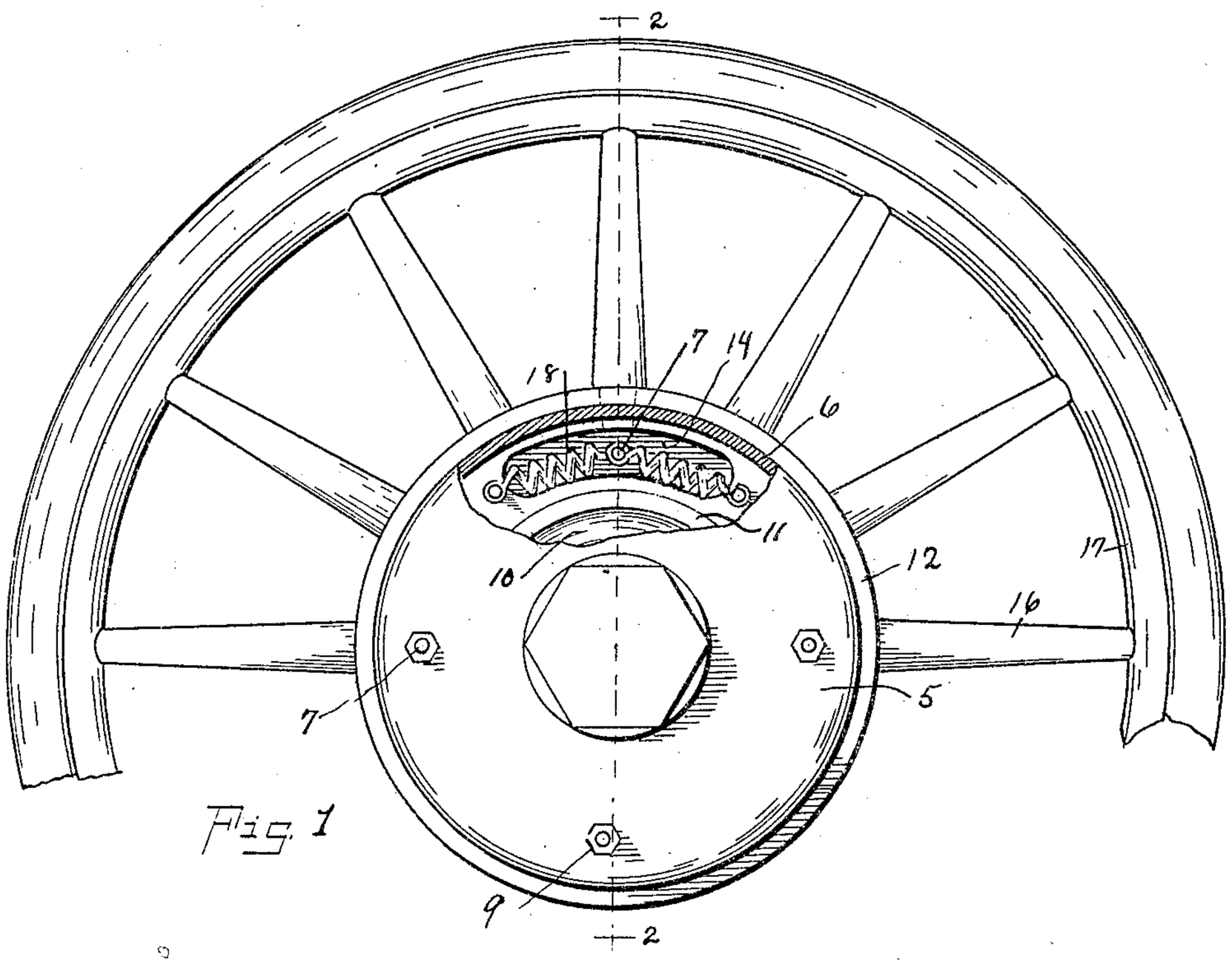
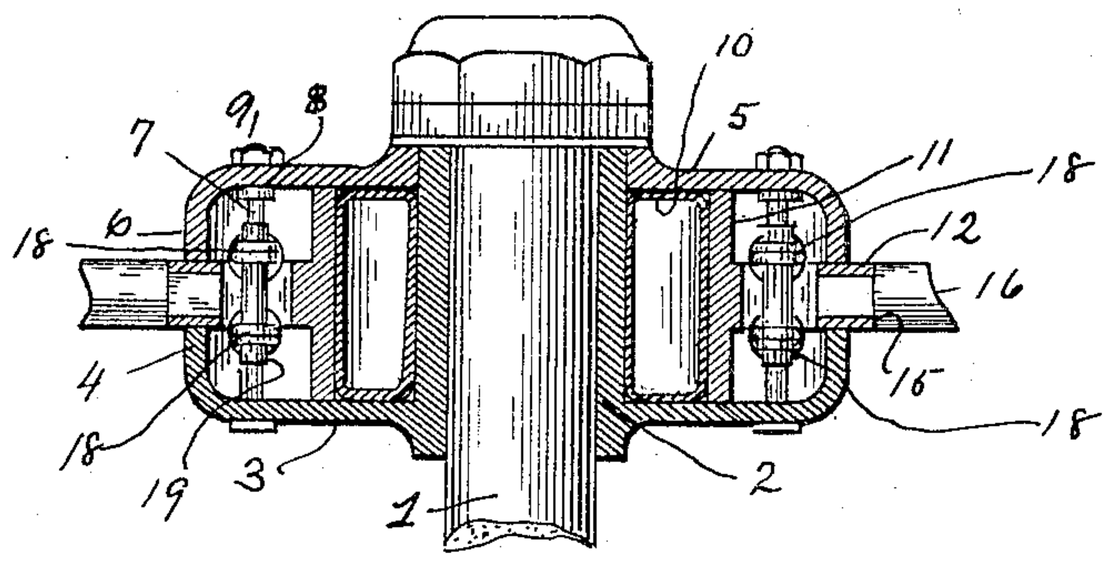



Fig. 1

Fig. 2

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# UNITED STATES PATENT OFFICE.

GEORGE H. TREADGOLD, OF PORT HURON, MICHIGAN.

## PNEUMATIC WHEEL.

No. 836,716. Specification of Letters Patent. Patented Nov. 27, 1906.

Application filed December 16, 1905. Serial No. 292,061.

*To all whom it may concern:*

Be it known that I, GEORGE H. TREADGOLD, a citizen of the United States, and a resident of the city of Port Huron, St. Clair county, State of Michigan, have invented certain new and useful Improvements in Pneumatic Wheels, of which the following is a full, clear, and exact specification.

This invention relates to pneumatic wheels, and especially to means for transmitting the torsional strain directly to the rim or axle without undue wear upon the pneumatic member of the wheel.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view in side elevation, with parts broken away, of a wheel embodying the features of the invention. Fig. 2 is a view in cross-section through the wheel-hub on line 2 2 of Fig. 1.

Referring to the drawings, 1 represents the vehicle-axle on which the wheel may be mounted and secured in any preferred manner. A hub 2 is journaled or keyed thereon, having at its inner end a circular flange 3, whose margin is turned toward the hub center and forms an annular flange 4. A correspondingly-shaped flange 5 is removably secured on the outer end of the hub, its rim 6 mating with the hub-flange 4 and being held at an interval therefrom by a plurality of bolts or rods 7, which pass through the hub-flange 3 near its margin and are provided with shoulders 8, against which the movable flange is clamped by nuts 9 or other suitable means.

A pneumatic tube of suitable material 10 encircles the hub 2 between the flanges and supports a cylinder 11, whose end faces abut against and have sliding contact with the interior faces of the hub-flanges 3 and 5. Said cylinder 11 is provided with a centrally-disposed flange 12, whose diameter is somewhat greater than the diameter of the hub-flanges and whose sides are parallel to the end faces of the cylinder and are adapted to bear against and have sliding contact with the inner margins of the rims 4 and 6, clearance being afforded for the clamping-rods 7 by suitably-disposed segmental slots 14. The outer face 15 of the flange 12 is suitably mortised for the reception of spokes 16, which, with the felly 17, complete the wheel.

To assist the pneumatic tube in holding the parts in their proper relation and to return the rods 7 to the center of the slots 14, a series of tangentially-disposed springs 18 are provided. The inner ends of said springs are properly secured to the rods 7, as by encircling a sleeve 19 on the rod, while their outer ends are fastened to the cylinder-flange 12, each pair of springs being opposed by a corresponding pair and the parts being so disposed that any torsional effort of the parts is resisted by the springs in unison, while radial oscillations are taken care of by the pneumatic tube.

The transmission of the torsional strain through the tie-rods by the springs at a point outside the pneumatic tube relieves the latter from a greater part of the work, as the leverage of the springs is greater than that of the tube.

The wheel is adapted to resist side thrust, as the construction causes such shock to be taken near the felly, thereby relieving the hub and cylinder.

Obviously details of construction may be varied without departing from the spirit of the invention, and I do not limit myself to any particular form or arrangement of parts except as set forth in certain of the appended claims.

I claim as my invention—

1. A pneumatic wheel comprising a hub provided at one end with a fixed flange having an inturned annular rim, a flange having a rim mating with said fixed flange-rim, removably secured on the other end of said hub at an interval from said fixed flange by tie-rods passing through said flanges near their margins, a pneumatic tube encircling said hub between the flanges, a cylinder encircling said tube having a flange projecting between and beyond said hub-flanges, and having sliding engagement with its end and flange faces on the flange and rim faces of the hub; said cylinder-flange being segmentally slotted, and opposed tangential springs secured in tension between the cylinder-flange and its tie-rods, adapted to center said rods in the flange-slots.

2. A pneumatic wheel comprising a hub, a flange integral therewith at the inner end, having an inturned annular rim, a flange having an inturned rim mating with said first rim, removably secured on the hub at an interval from said fixed flange by tie-rods secured to said flanges near their margins, a pneumatic tube encircling said hub between the flanges, a cylinder encircling said tube, whose end faces have sliding engagement

with the inner faces of the hub-flanges, a flange on said cylinder extending between and beyond said hub-flanges and bearing laterally against the rims of said hub-flanges, provided with segmental slots, and opposed tangential springs secured in tension between the cylinder-flange and tie-rods, adapted to center said rods in said segmental slots.

In witness whereof I have hereunto set my hand, in the presence of the subscribing witnesses, this 14th day of November, A. D. 1905.

GEORGE H. TREADGOLD.

Witnesses:

S. EVELAND,

C. R. STICKNEY.