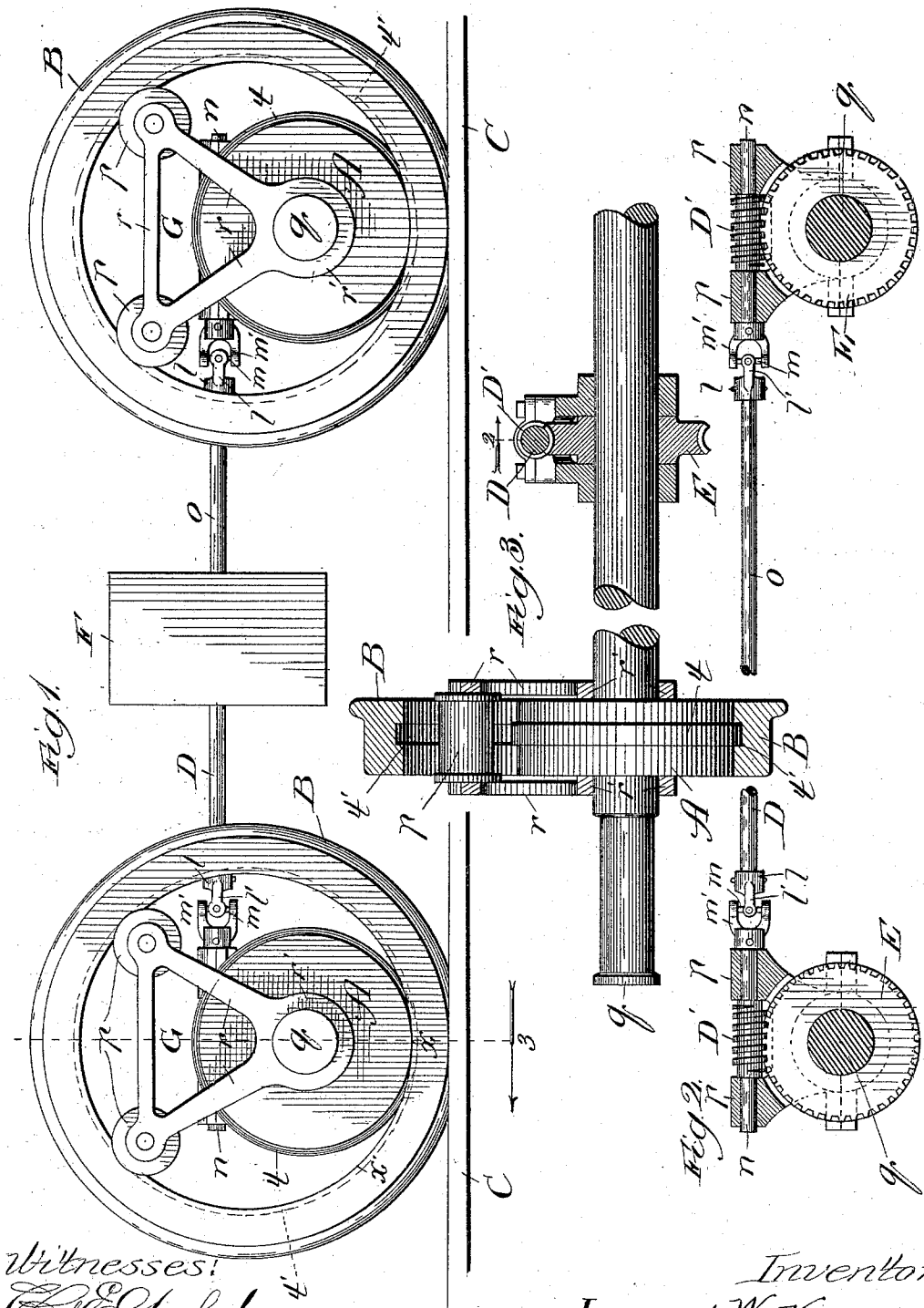
(No Model.)

J. W. KENEVEL.

DRIVING MECHANISM.

No. 498,936. Patented June 6, 1893.



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UNITED STATES PATENT OFFICE.

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DRIVING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 498,936, dated June 6, 1893.

Application filed September 5, 1892. Serial No. 445,052. (No model.)

To all whom it may concern:

Be it known that I, JEANNOT W. KENEVEL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Driving Mechanisms, of which the following is a specification.

My invention relates, primarily, to the class of driving mechanism involving an annular wheel in and against the inner surface of which is confined a rotary wheel which, by its rotation, drives the annular wheel; and my object is to provide improved driving means for the inner wheel.

In the accompanying drawings, Figure 1 is a view in side elevation of my improved mechanism, showing it duplicated in the form in which it is best adapted for application to the front and rear trucks of a car. Fig. 2 is a broken longitudinal section showing details of the mechanism, the section being taken at the line 2 on Fig. 3 and viewed as indicated by the arrow; and Fig. 3 is a broken view of a section taken at the line 3 on Fig. 1 and viewed in the direction of the arrow.

A is a wheel, of any desired form and material, confined on the base of the inner surface of an annulus B, rotating at its outer periphery on a support, the inner wheel being driven to rotate by suitable mechanism, such as that hereinafter described, whereby in the rotation of the wheel A its frictional bearing against the outer annulus, supported on its foundation C (as the ground, a railroad-track, or anti-friction wheels, or other suitable support) will tend to advance the wheel A in the direction of rotating it, and thus cause it to climb the inner surface of the annulus from about the point x to about the point x', and, by the consequent progression-strain it exerts, revolve the annulus on its support.

To prevent slipping the inner wheel may be provided with a peripheral tongue t to enter a circumferential groove t' in the annulus B, or the tongue and groove may be supplanted by cog-teeth; or any other suitable means may, if required, be employed for preventing the slipping referred to. Furthermore, to hold the wheel A down to its work against the resistance it has to overcome, or against any strain of its driving-mechanism tending to raise it, I provide a retainer G shown as a triangular yoke r supported on the axis q through the medium of a collar r' and carrying at its upper corners anti-friction rollers p fitting against coincident parts of the inner surface of the annulus. Other forms of the retainer may, however, be employed for the purpose of confining the inner wheel against its seat, though the yoke and anti-friction roller construction is desirable as not interfering in any way with the action of the wheel A.

For driving the wheel A I may employ a worm-shaft D, the worm D' of which engages a worm-wheel E secured on the axle q; and the shaft D is driven by a suitable (say electric) motor, indicated at F, applied to it.

For use in producing the locomotion of cars and other vehicles, it is desirable that the driving power be applied both to the front and rear axles of the wheels A. This I accomplish by the construction illustrated in the drawings and of which the following is a description: The front and rear axles q carrying the wheels A, each within a wheel or annulus B, are each provided with a worm-wheel E; and the shaft D is journaled in bearings p at its opposite ends on the axles q and has a worm D' near each end to engage its respective worm wheel, whereby the motor F, by rotating the shaft D, exerts its power on both axles q. To avoid any tendency to binding or buckling in the shaft D (as would be occasioned by turning the vehicle supported by the axles, or by a car turning on a curve), I render it flexible. As shown the desired flexibility in a lateral direction of the shaft D is attained by forming it in sections and pivotally connecting the intermediate section o at its extremities with the end-sections n, at which the shaft is journaled, by means of pivot-pins m in bifurcated heads m' on the inner ends of the shaft-sections n, and heads l fastened on the ends of the intermediate shaft-section o and having extensions l' fastened to the pivot-bolts m. Thus when either axle is turned out of parallel relation with the other the flexible joints in the shaft D avoid any resistance to such turning while they do not affect the rotation of the driving-shaft; and this flexible gearing-mechanism for the axles q is advantageous whether or not the wheels B be provided about the wheels A.

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

1. In combination with an annular wheel B and its drive-wheel A confined against and engaging the inner surface of the annular wheel, driving means for the wheel A comprising a worm-wheel on the drive-wheel axis, a rotary shaft having a worm engaging the worm-wheel, and a motor on the shaft, substantially as described.

2. In combination with the annular wheels B and their drive-wheels A confined against and engaging their inner surfaces, means for driving the wheels A, comprising a flexible rotary shaft D geared at its opposite ends to the adjacent axes of the drive-wheels, and a motor F applied to the shaft, substantially as described.

JEANNOT W. KENEVEL.

In presence of—
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