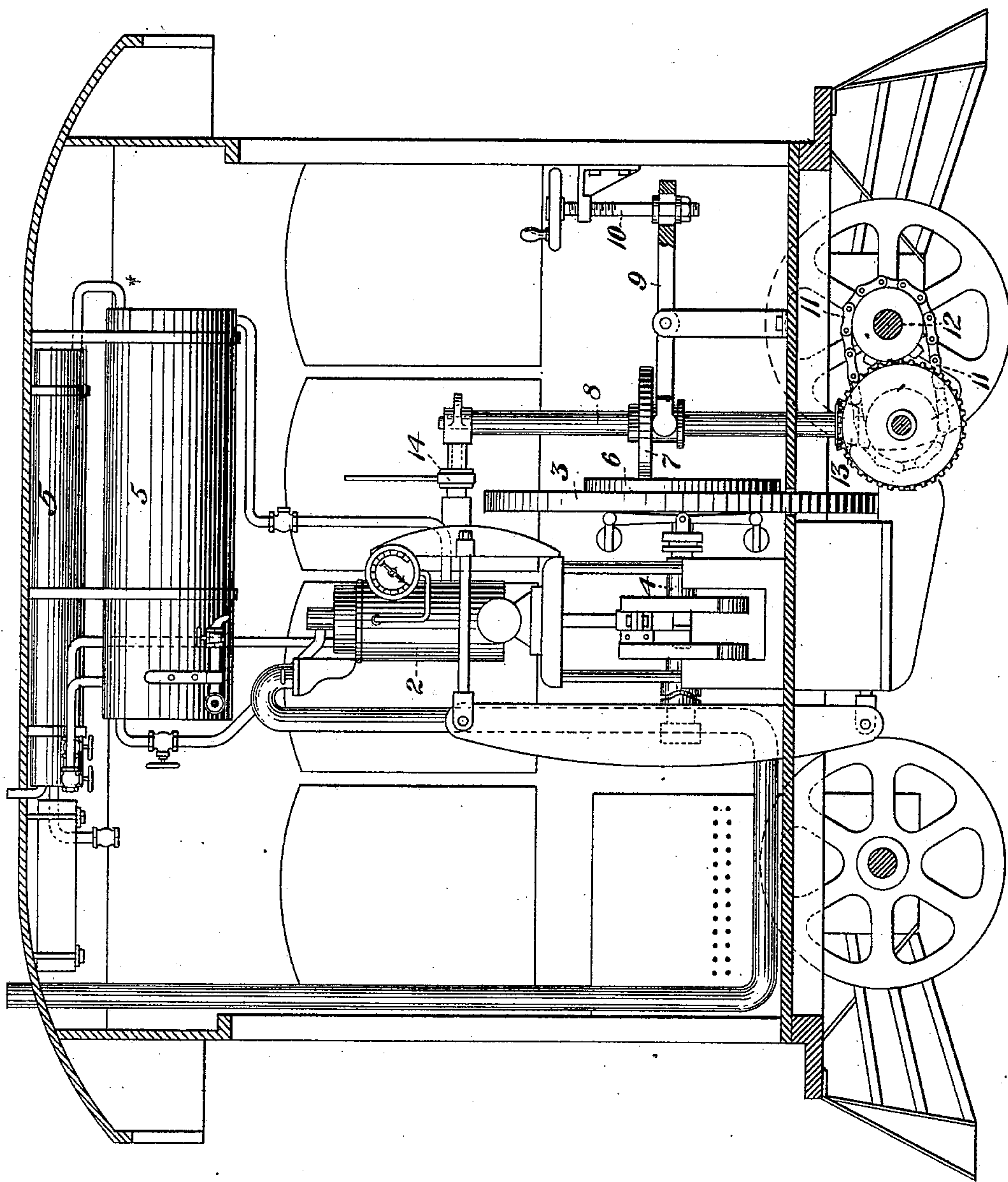


(No Model.)

J. S. CONNELLY.
CAR MOTOR.

No. 426,985.

Patented Apr. 29, 1890.



WITNESSES.

C. M. Clarke.
H. B. Conner.

INVENTOR.

John S. Connelly
by W. Baxendell & Sons
his Attorneys

UNITED STATES PATENT OFFICE.

JOHN S. CONNELLY, OF PLAINFIELD, NEW JERSEY.

CAR-MOTOR.

SPECIFICATION forming part of Letters Patent No. 426,985, dated April 29, 1890.

Application filed May 7, 1889. Serial No. 309,895. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. CONNELLY, of Plainfield, in the county of Union and State of New Jersey, have invented a new and useful
5 Improvement in Car-Motors, of which the following is a full, clear, and exact description.

In the accompanying drawing, which is a vertical longitudinal section of a car-motor provided with my improvement, 2 represents
10 the driving-cylinder of a gas-engine, which may be of any suitable construction.

3 is the fly-wheel, mounted on the usual main shaft 4, and 5 5 are tanks or vessels in which air is charged with the vapor of a liquid volatile substance—such as naphtha or gasoline—
15 which is used as the fuel to furnish the explosive charge for the cylinder.

In the use of the motor the engine is driven by successive explosions continuously and in a
20 single direction without need of reversing or stopping during the trip.

6 is a disk mounted on a driven shaft, which may be the fly-wheel shaft, and 7 is a second disk set by a feather and spline on a shaft 8,
25 on which it is movable lengthwise. The periphery of the disk 7 is in contact with the face of the disk 6, so that the former is driven by rotation of the latter, and so that the speed transmitted to the shaft 8 is variable by moving
30 the former on its shaft toward and from the center of the latter. Such motion of the disk 7 may be effected by any suitable arrangement of mechanism—for example, by means of a lever 9, which is operated by a
35 hand-screw 10. The shaft 8 is connected to the driving-axle 12 of the car by means of gearing 13 and sprocket-gearing 11.

The engine, as above stated, runs continuously, and its speed is regulated by the driver
40 or engineer, who shifts the positions of the disk 7 to correspond to the speed desired to be transmitted, the nearer the disk is moved to the center of the other the slower being the speed of transmitted motion, and as the disk
45 7 may be set at any position between the center of the other disk and the periphery thereof motion of any rate of speed between certain limits may be transmitted to the car-axle.

This is an important feature of the apparatus,
50 since it enables the speed of the car to be varied

accurately to conform to the load, the grade, and the amount of work to be done by the engine.

In the use of friction-gearing of the character described it is found that the nearer the
55 one disk is brought to the center of the other and the less the rate of transmitted speed the closer should be the frictional contact between the disks. To this end I provide means consisting, preferably, of a lever and a cam
60 or screw nut 14, by which the bearings of the shaft of the disk 7 may be moved to press the periphery of the disk against the surface of the other disk with an adjustable degree of pressure, and by moving it sufficiently to dis-
65 connect these surfaces the car-axle may be put entirely out of gear with the engine.

The motion of the engine may be reversed in direction either by moving the disk 7 from
70 one side of the center of the disk 6 to the other, or separate clutch mechanism may be employed for this purpose, as may be found desirable.

The apparatus may be modified in many ways—for example, by the substitution for
75 the form of driving mechanism which I have shown of other known mechanical devices accomplishing the results hereinbefore stated.

The advantages of my improvement have been indicated above and will be appreciated
80 by those familiar with the objections incident to other systems of transmitting motion of variable speed.

I claim—

1. In a locomotive car-motor, the combination, with the driven car wheel or axle and an engine for driving the same, of intermediate driving mechanism comprising driving
85 wheels or disks relatively movable to vary the position of contact for the purpose of altering the speed of transmitted motion, and mechanism by which the frictional pressure
90 of the driving wheels or disks may be varied, substantially as and for the purposes described.
95

2. In a locomotive car-motor, the combination, with the driven car wheel or axle and an engine for driving the same, of intermediate driving mechanism comprising driving
100 wheels or disks relatively movable to vary

the position of contact for the purpose of altering the speed of transmitted motion, and mechanism for so moving the same, movable bearings for one of the wheels or disks, and
5 mechanism by which said bearings may be moved to vary the contact-pressure of the wheels or disks, substantially as and for the purposes described.

10 3. In a locomotive car-motor, the combination, with the driven car wheel or axle and an engine for driving the same, of intermediate frictional driving mechanism transmitting

motion of variable speed, and mechanism for varying the frictional pressure conformably to the variation in speed of the transmitted
15 motion, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand, this 20th day of April, 1889, at New York city.

JOHN S. CONNELLY.

Witnesses:

WM. H. NAFIS,

THOMAS W. BAKEWELL.