

(No Model.)

2 Sheets—Sheet 1.

S. E. JARVIS.
TRACTION ENGINE.

No. 294,877.

Patented Mar. 11, 1884.

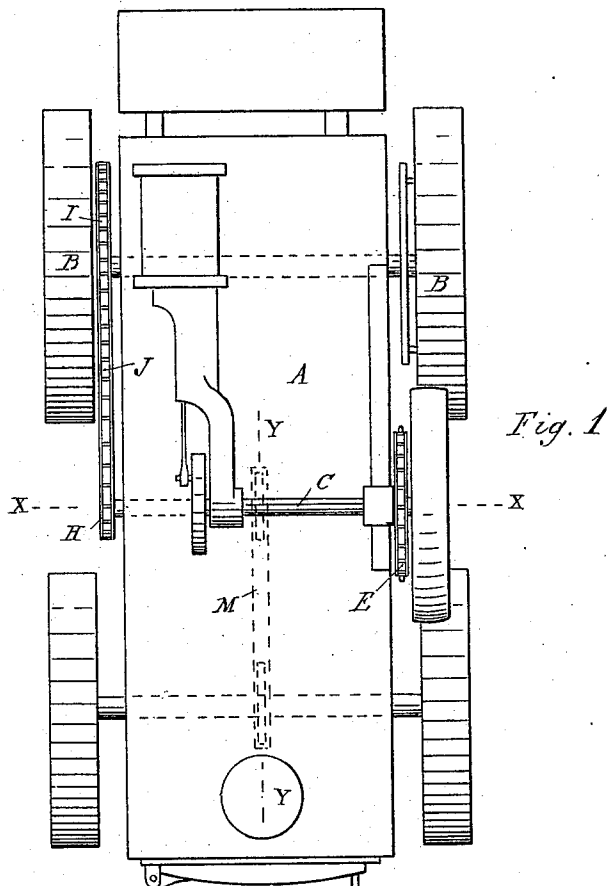


Fig. 1

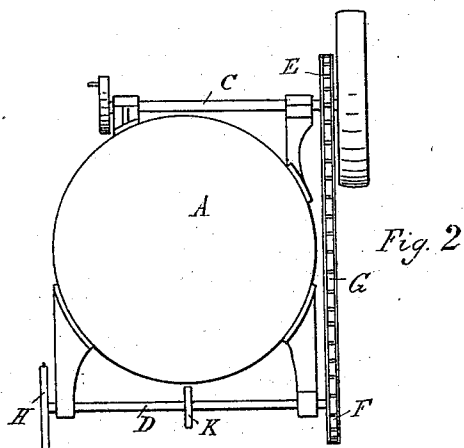


Fig. 2

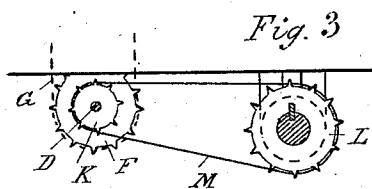


Fig. 3

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S. J. Sprague

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By Phil. S. Sprague Atty

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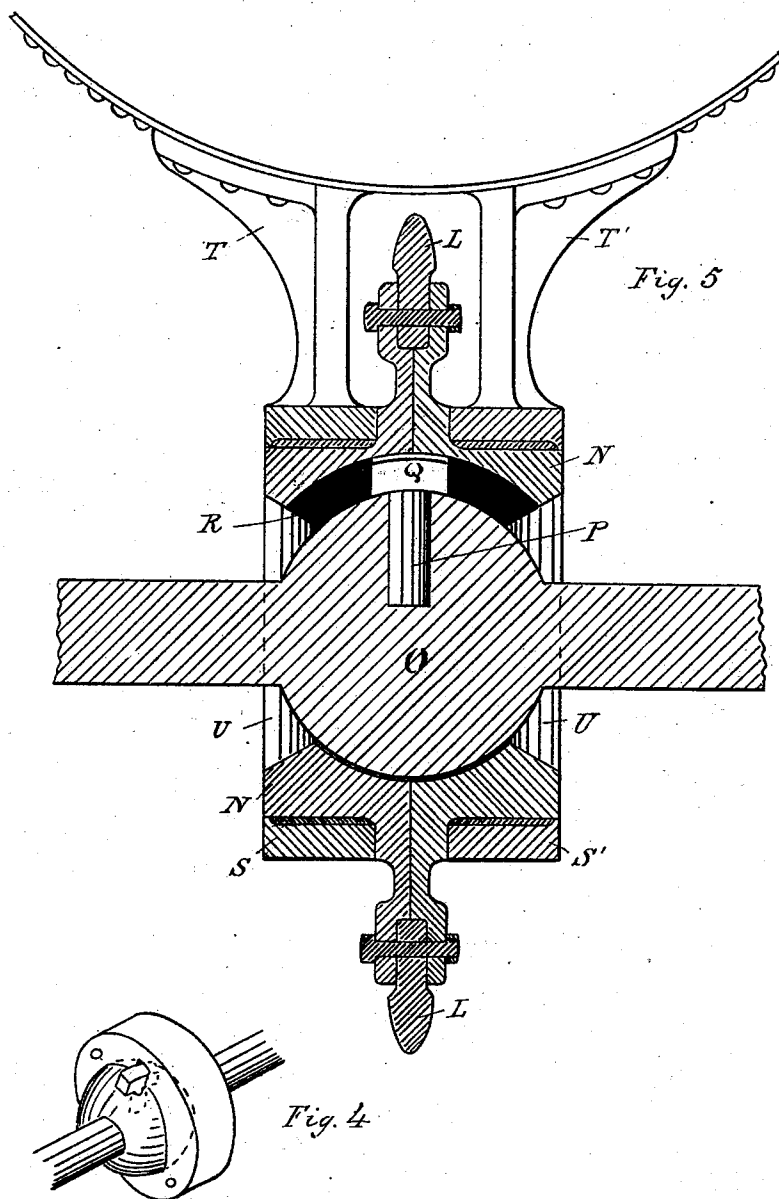
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UNITED STATES PATENT OFFICE.

SAMUEL E. JARVIS, OF LANSING, MICHIGAN.

TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 294,877, dated March 11, 1884.

Application filed December 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL E. JARVIS, of Lansing, in the county of Ingham and State of Michigan, have invented new and useful

Improvements in Traction-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to an improvement in traction-engines; and the invention consists in the new and novel construction and arrangement of the traction-gearing, all as hereinafter described, and pointed out in the claims.

In the drawings which accompany this specification, Figure 1 is a diagram plan of my improved traction-engine. Fig. 2 is a cross-section on the line X X in Fig. 1. Fig. 3 is a cross-section on line Y Y in Fig. 1. Fig. 4 is a detached sectional perspective view of the ball and socket bearing on the center of the front axle. Fig. 5 is a vertical central section on the axis of the front axle.

A represents the boiler, which is suitably supported upon the traction-wheels B. These traction-wheels are four in number, and consist of the two front wheels secured upon the front axle and revolving therewith, and the rear drive-wheels, B.

C is the main shaft, to which the motion of the engine is conveyed in the usual manner.

D is a counter-shaft journaled vertically below the shaft C.

E is a chain-wheel secured upon one end of the main shaft C, and F is another chain-wheel secured upon the corresponding end of the counter-shaft D.

G is a chain passing over the two last-described chain-wheels.

H is a chain-wheel secured upon the other end of the counter-shaft D, and I is a chain-wheel secured upon the rear axle or drive-wheel.

J is a drive-chain passing over the two last-described chain-wheels, and communicating motion from the counter-shaft D to the rear axle or rear drive-wheel.

K is a chain-wheel secured upon the counter-shaft D in the center, and L is another chain-wheel upon the front axle in the center thereof.

M is a drive-chain passing around the two

last-described chain-wheels, and communicating motion from the counter-shaft D to the front axle.

The chain-wheel L is provided with an enlarged hub, N, which forms a socket-bearing, within which the ball O is inclosed, which latter is rigidly secured upon the center of the front axle.

P is a pin resting loosely in a radial socket of the ball O, and it is provided with a head, Q, which fits into the segmental circular slot R of the hub N. The hub N is itself journaled in a two-part box, S S', which, by means of the bracket-extensions T T', is secured to the under side of the boiler, thus forming a hanger, within which the chain-wheel L can freely revolve.

In practice, the motion from the main shaft is first conveyed to the counter-shaft D, and from there, by means of the drive-chain J, to the rear axle and its drivers, and by means of the drive-chain M motion is likewise communicated to the chain-wheel L upon the front axle, which, by reason of the construction above described, communicates motion to said front axle. It will be seen that the front axle, although forced to revolve with the chain-wheel L, is perfectly free to adjust itself in any direction within a certain limit, depending upon the size of the openings U in the sides of the hub N, and while the pin Q forms the medium for conveying the motion from the chain-wheel L to the ball O, it can in no wise interfere with the universal action of the ball-and-socket joint, as it is free to turn within its socket in the ball. The wheel L is constructed in three parts, two side pieces or hub, N, each having a circular set-off, *l*, near its outer circumference, which forms a peripheral groove or recess where the two parts are brought together, into which is seated the sprocket-rim L', and all are secured together by bolts *b*, passing through the two-part hub N and the rim L', as shown in Fig. 5. As the chain G conveys all the power from the main shaft C to the counter-shaft D, and often needs tightening up to prevent the objectionable noise which a loose chain occasions, and to do this in a simple manner, I make the bearings in which the counter-shaft D is journaled vertically adjustable.

The advantages derived from my improvement are the following:

First. I communicate the motion from the engine both to the front and rear wheels, thus making all the wheels of the engine act as drivers. This construction allows of an even distribution of the weight of the engine.

Second. If necessary, I can easily dispense with either one of the chains M J in case of accident.

Third. My traction-gearing is extremely simple, and avoids the use of any cog-gearing, which is always dangerous and cumbersome.

Fourth. The inequalities of the ground can produce no torsional strain upon the engine, as the front axles are perfectly free to follow all inequalities of the ground.

What I claim as my invention is—

1. In a traction-engine, the combination of the ball O, socket or two-part hub N, detach-

able sprocket-rim L', or its equivalent two-part box S S', provided with bracket-extensions T T', pin P, provided with head Q, and segmental slot R, all combined and operating substantially as and for the purpose described.

2. As an improved sprocket-wheel in traction-engines, the two-part hub N, having a detachable toothed rim, as L', secured to its periphery by means substantially as set forth.

3. A sprocket-wheel made in two parts, and having a peripheral channel between the same, in which is secured a tooth-rim, substantially as described.

SAMUEL E. JARVIS.

Witnesses:

H. S. SPRAGUE,

E. SCULLY.