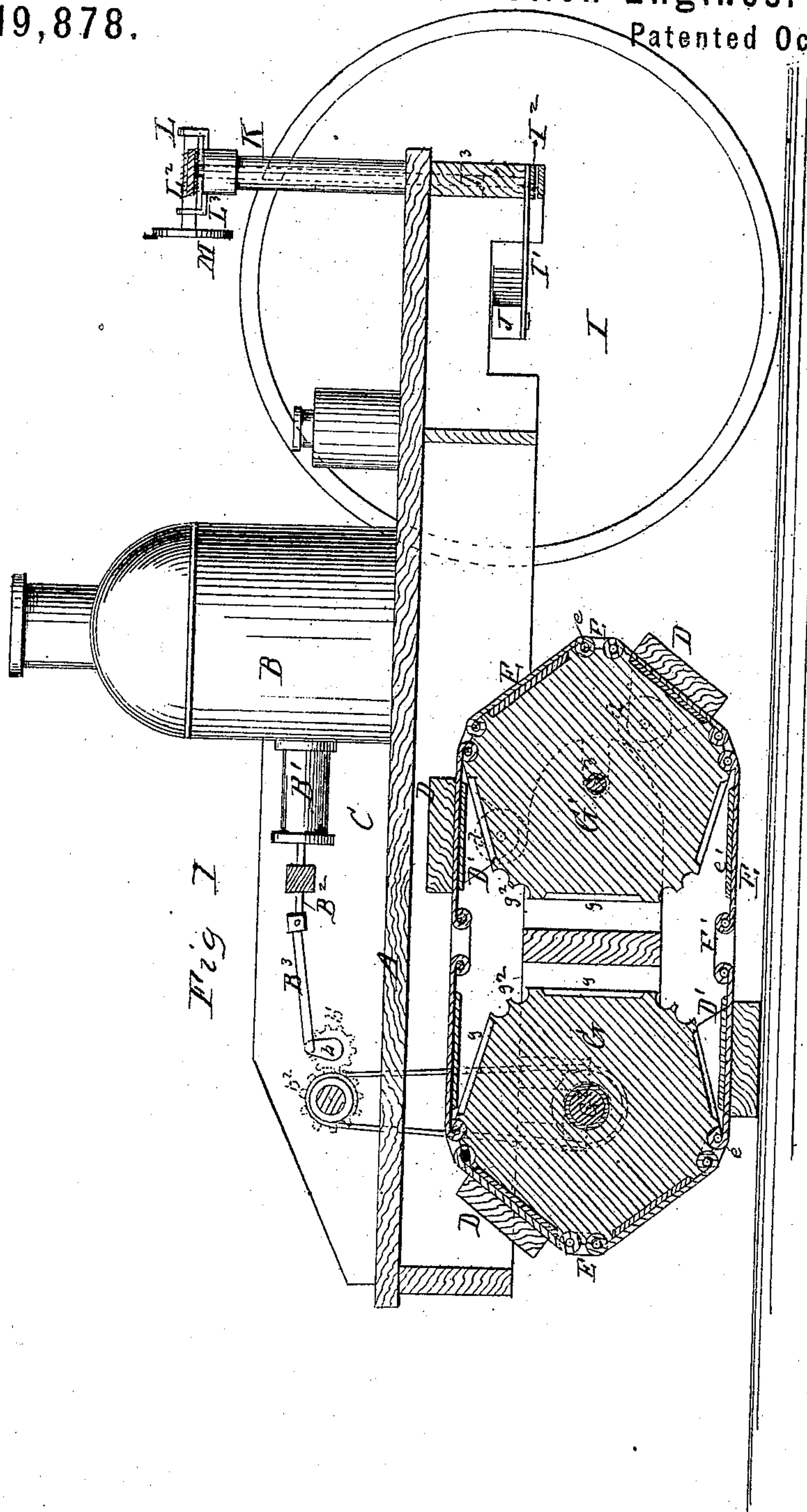


R. C. PARVIN.
Improvement in Traction Engines.
No. 119,878. Patented Oct. 10, 1871.



Witnesses
F. B. Curtis,
Villette Anderson

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attys

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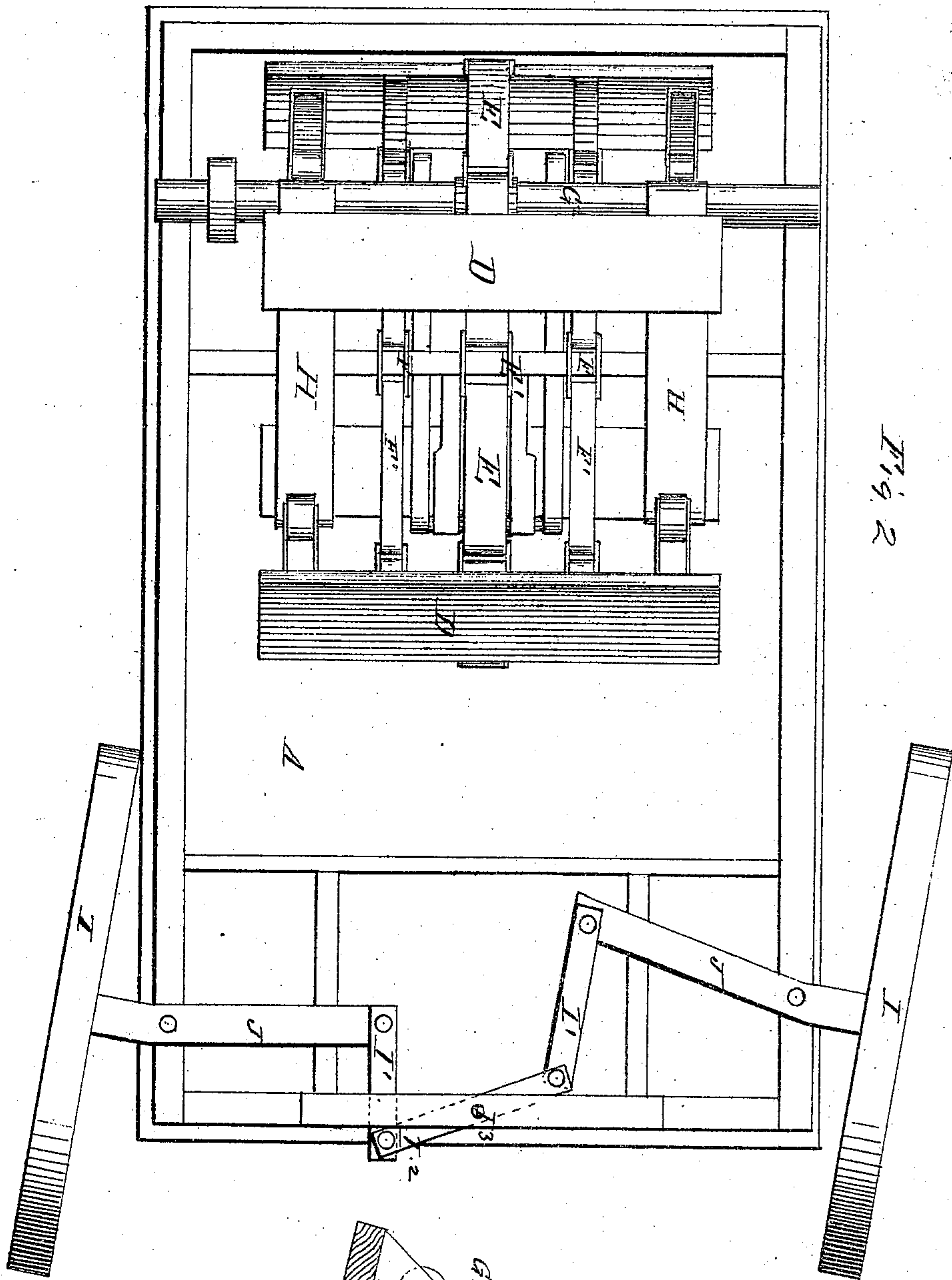


Fig. 2

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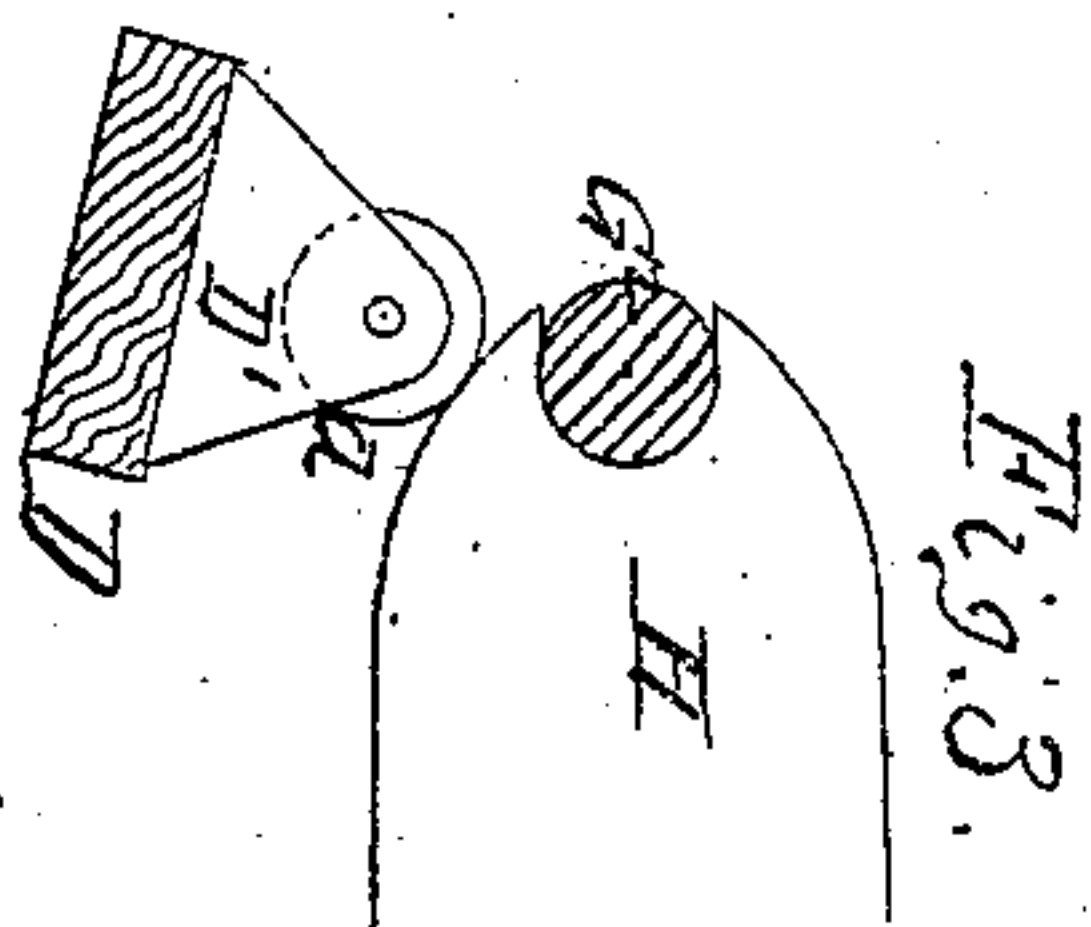


Fig. 3.

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Revised Feby. 13th 1872.

119,878

UNITED STATES PATENT OFFICE.

ROBERT C. PARVIN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN TRACTION-ENGINES.

Specification forming part of Letters Patent No. 119,878, dated October 10, 1871.

To all whom it may concern:

Be it known that I, ROBERT C. PARVIN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and valuable Improvement in Traction-Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a vertical longitudinal section of my invention. Fig. 2 is an under-side plan view of the same. Fig. 3 is a detail.

This invention has relation to locomotives designed to run on common roads; and the novelty consists in the construction and arrangement of devices whereby a locomotive is made to lay down its own track (the latter being in the nature of an endless chain) as it progresses, and to take it up again, according as each successive part of said track fulfills its purpose. Said invention also consists in the construction and novel arrangement of guiding-wheels, designed to be adjustable in order to guide the locomotive in any direction, in connection with certain operating devices, as hereinafter described.

In the accompanying drawing, illustrating this invention, A represents a locomotive bed, which supports the operating machinery for propelling the locomotive. The locomotive is designed to be run by steam-power, and hence is provided with the steam-boiler B, which supplies the cylinder B¹, of which B² is the piston-rod. The latter is coupled to a pitman, B³, which connects with a crank, b, on the end of a shaft supporting a pinion, b¹. This pinion engages with a toothed-wheel, b², on another shaft, upon the end of which is a pulley-wheel coupled by a belt with a pulley on the end of a transverse shaft or axle underneath the bed A. This axle holds one of the cam-wheels upon which the endless chain-track travels when the locomotive is in motion. C represents the frame or foundation to which the cylinder B¹ is secured. The endless-chain-track is located at the rear end of the locomotive, the guiding-wheels being at the forward end. The essential component parts of said endless chain-track are the shoes D and their connecting-links. The shoes consist of transverse bars or ties, to

the inner faces of which are secured stirrups or brackets D', containing each a friction-wheel, d. These stirrups, with the wheels, are located near the ends of the shoes D. The entire series of shoes are connected by means of a principal chain, composed of large links E and small links E'. Each of the small links consists of two parallel plates, held together by two pins, e, and each of the large links consists of a single plate, curled or bent at either end to form eyes for the reception of the pins e. Each alternate link of the larger class is secured by bolts or equivalents to the inner face of a shoe, thereby allowing one large and two small links of the chain to intervene between every two shoes. This construction and arrangement of the chain produces flexibility and allows the chain-track to travel with greater ease. Each of the links E has a rectangular projection, e', on its inner face, to fit rectangular recesses cut in the cam-wheels, over which said links travel, as hereinafter more fully described. Besides the chain above described there are other shorter chains, of which two are arranged between every alternate two of the shoes. Each of these chains consists of two small links, F, and three large links, F', similar in construction and relative arrangement to those of the large chain. The middle large link and the two small links are between the two shoes, while the two outer links are secured by bolts or otherwise to the inner faces of said shoes. The chain-track as described travels over a pair of cam-wheels, G G¹, secured to horizontal transverse shafts G² G³, which have bearings in sockets formed in the ends of longitudinal bars or rails H of a frame secured to the under side of the bed A. The cam-wheels G G¹ are of a pentagonal form, the sides g being adapted to receive the large links E of the principal chain, and the angles g² notched to receive the small links. The sides are formed with recesses of a rectangular form to receive the projections e'. The rotation of these pentagonal wheels causes the chain-track to move and to lay the shoes in succession upon the ground. The length of chain-track, number of shoes, and distance apart of the pentagonal cams govern the number of shoes which lie at once on the ground; but I prefer that the arrangements should be such as to let but one shoe at a time be in full contact, and that as it begins to rise over a cam another shoe shall be

gin to reach the ground. During the motion of the chain-track the friction rollers *d* travel over the oval bars or rails H.

Having now described the mechanism by which a locomotive is enabled to provide its own tracks, I will proceed to describe the second element of my invention, which relates to the guiding of said locomotive.

Referring to the drawing, I I represent two guiding-wheels of large diameter, journaled each to a separate shaft or axle, J, which is swiveled or pivoted to the bed of the locomotive, and is capable of being turned so as to change the position of the wheels. To the inner end of each axle an arm, I¹, is pivoted, and also to a lever, I², pivoted at the end of the car to the lower end of a shaft, I³. The turning of this shaft moves the wheels I I to different angles with reference to the sides of the bed A, but tends to keep them always parallel to each other. The shaft I³ is incased by a vertical tube, K, and is furnished with a worm-wheel or pinion, L, at its upper end,

which is worked by a worm, L², journaled to a bracket, L³, which is supported on the top of said tube. The worm may be operated by a hand-wheel, M.

I claim as my invention—

1. The steering-apparatus, consisting of the wheels I I having independent axles, the lever I², shaft I³, toothed-wheel L, and worm L², substantially as specified.

2. The endless shoe-bearing band for traction-engines, consisting of the short side plates E', the pivot-bolts *e*, and the long links E encircling at each end said bolts *e*, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

ROBERT C. PARVIN.

Witnesses:

J. M. HYNÉ,
F. B. CURTIS.

(94)