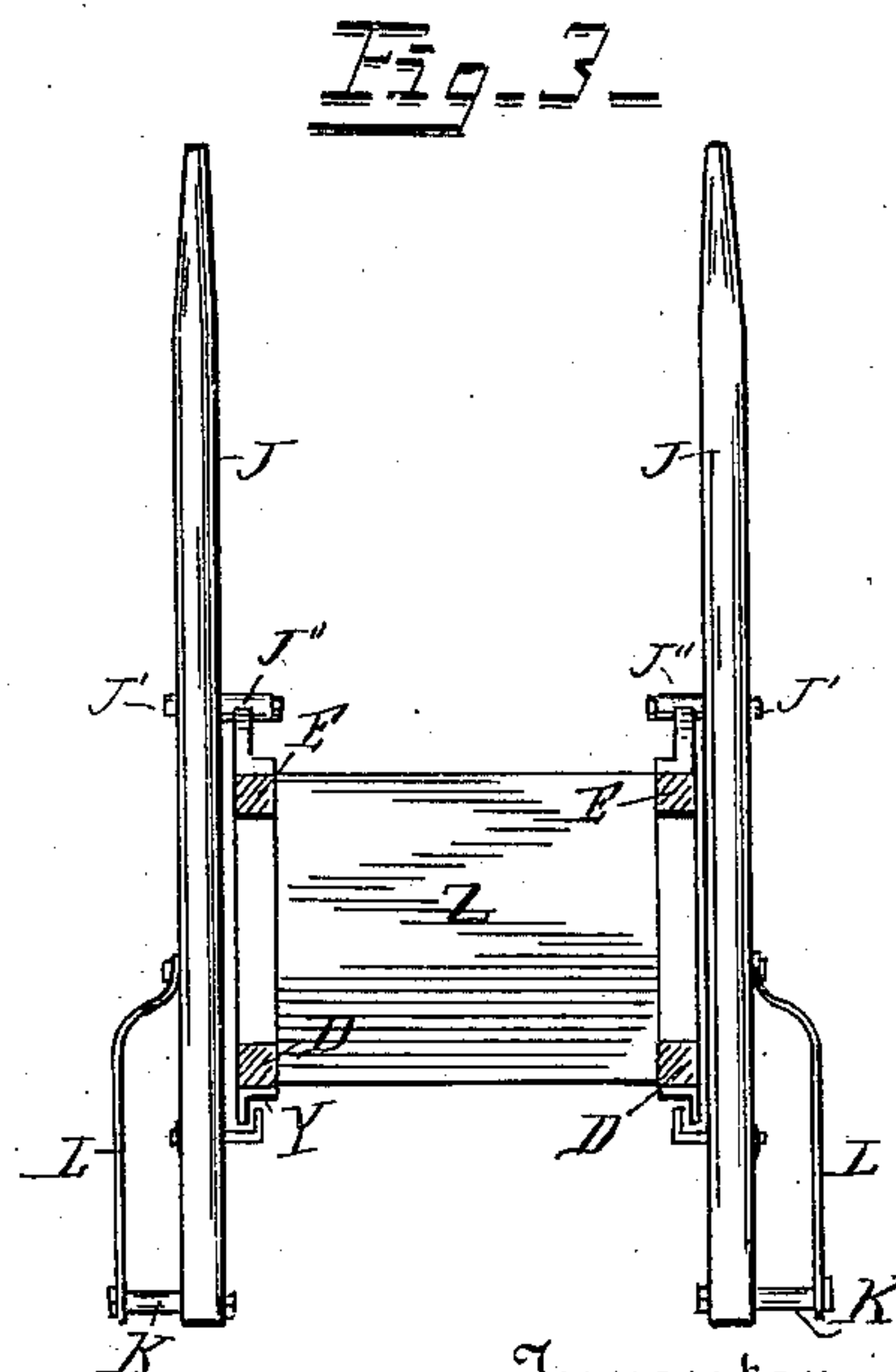
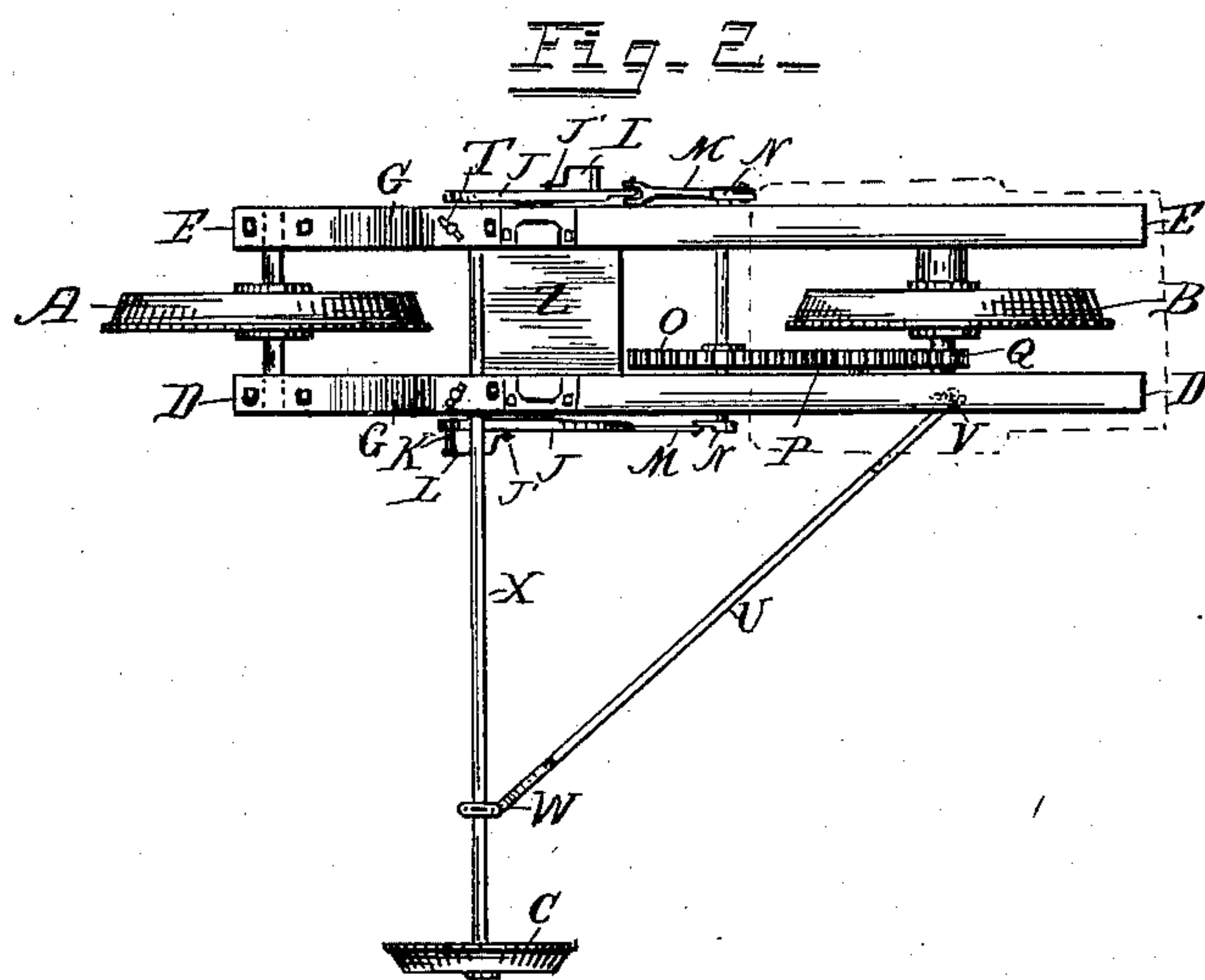
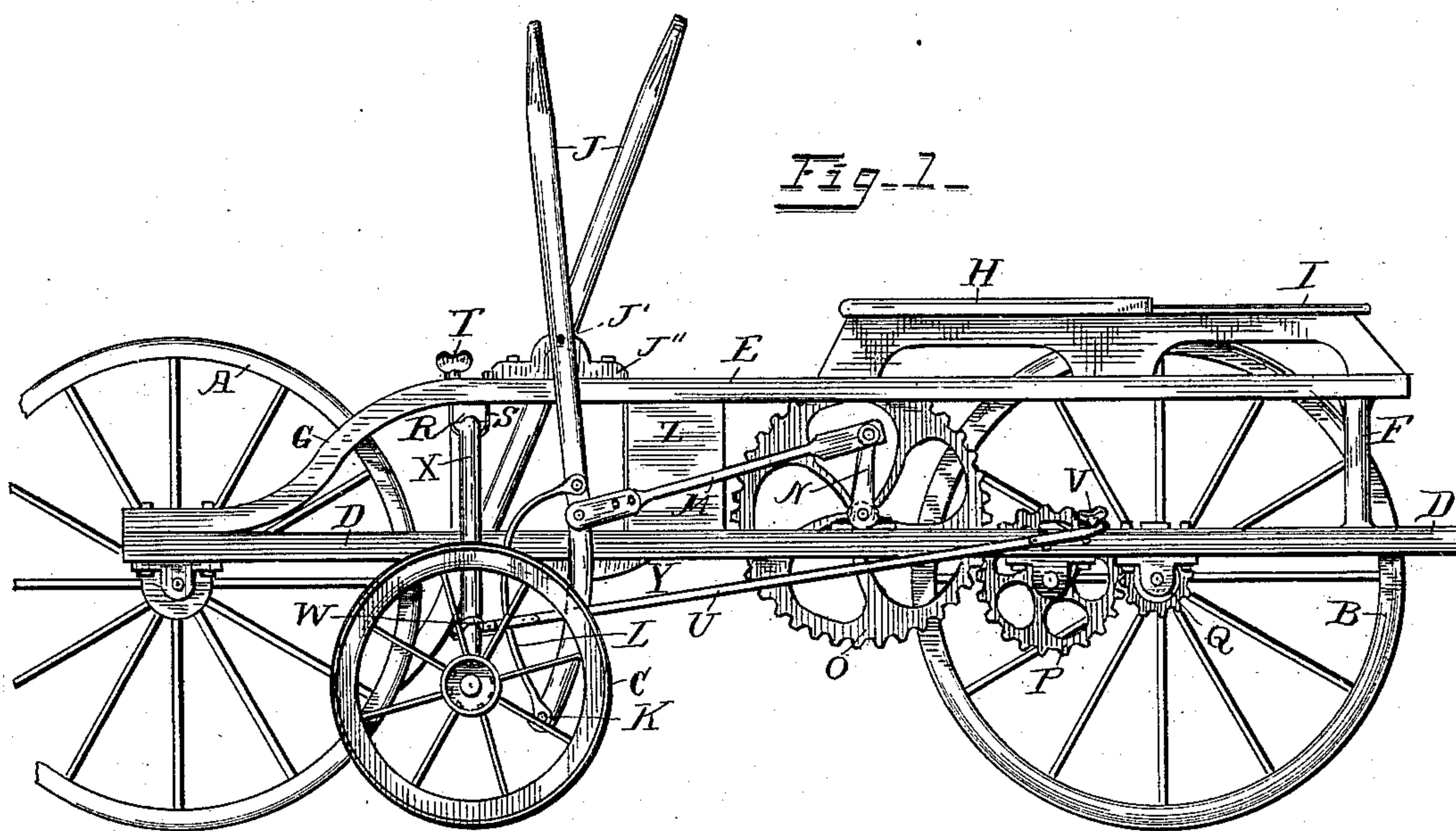


(No Model.)

C. L. COLLIER.  
RAILWAY VELOCIPED.

No. 376,073.

Patented Jan. 10, 1888.



Witnesses  
H. T. Robertson  
C. H. Raider.

Inventor  
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By his Attorney  
J. W. Robertson



# UNITED STATES PATENT OFFICE.

CHARLES L. COLLIER, OF HOWELL, MICHIGAN.

## RAILWAY-VELOCIPEDÉ.

SPECIFICATION forming part of Letters Patent No. 376,073, dated January 10, 1888.

Application filed May 21, 1887. Serial No. 239,004. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES L. COLLIER, of Howell, in the county of Livingston and State of Michigan, have invented new and useful Improvements in Railway-Velocipedes; 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 new and useful improvements in railway-velocipedes; and the invention consists in the peculiar construction, arrangement, and combination of different parts, all as hereinafter described.

In the drawings which accompany this specification, Figure 1 is a side elevation of my improved machine. Fig. 2 is a cross-section through frame, and Fig. 3 is a plan view thereof.

A and B are the main-track wheels, and C is a side wheel secured to an outrigger, X.

The main-track wheels are suitably journaled in boxes secured to the under side of a pair of longitudinal stringers, D, placed far enough apart to give clearance for the wheels to revolve. The stringers D form the bed of the frame of the machine, which further consists of two upper stringers, E, running parallel to and above the lower stringers, D, and supported thereon by uprights F on the rear end and by a downward bend, G, formed at the forward end of each of the upper stringers and secured near the forward end of the lower stringers. Upon the rear of this frame is supported a suitable seat, H, preferably provided with a rear extension, I, on which to carry baggage.

Z is a tool-box arranged between the forward ends of the frame in suitable position to be out of the way of the operating parts.

J J are two levers arranged for hand and foot propulsion. These levers are fulcrumed at J' in any suitable manner, preferably by means of brackets J<sup>2</sup>, secured upon the upper girts. These levers are arranged to operate in vertical planes parallel to and close to the sides of the frame. The lower end of each lever is provided with a pedal, K, which projects laterally from the lower end of each lever, and has secured to its outer end a brace-rod, L, which extends upwardly and forwardly and connects at a suitable height by a curved bend with the levers, so arranged as to form a

brace and an outer guard for the legs of the operator without interfering with the free operation thereof.

M is a pitman, one for each lever, and connecting with a double-crank shaft, N, journaled in suitable boxes upon the lower stringers. Upon this shaft is secured a gear-wheel, O, which meshes with the intermediate gear-wheel, P, which in turn meshes into a pinion, Q, secured upon the axle of the rear track-wheel.

R are clamping-boxes, made in halves, as shown, secured to the upper stringers, E, by means of clips S, each of which is provided with a thumb-screw, T, by means of which the clamping force is applied to secure the outrigger X in place, or permit of its being unclamped readily, if desired, to remove or fold the outrigger against the machine.

U is a folding brace pivotally secured at the rear end by means of the thumb screw V, or otherwise, and at the forward end this folding brace is provided with a pivotal clip, W, by means of which this end is removably secured to the outrigger X.

It will be seen that by means of this construction, after the outrigger has been loosened in its bearings by unscrewing the thumb-screw T and unscrewing the thumb-screw V, the outrigger and brace may be folded against the side of the car, or entirely removed, if desired, for convenient transportation.

To guide the levers J in their movement I preferably engage the lower end of each lever in any suitable manner with a circular guide-plate, Y, secured to the outside of the lower stringers. The levers J move in opposite directions, instead of in the same direction, as in the ordinary manner. This I consider a great improvement, as the operator at the same time braces himself with one hand and foot while pulling with the other. At the same time no dead-centers occur.

What I claim as my invention is—

1. In a railway-velocipede, the combination, with the frame, of two propelling-levers fulcrumed to said frame, foot-pedals P, secured to the lower ends of said levers, and braces L, extending upwardly and forwardly from the outer end of each pedal, and curved as shown, and secured at their upper ends to said levers, substantially as described.

2. In a railway-velocipede, the combination, with a frame consisting of a pair of upper and lower stringers, of two main-track wheels revolving between these stringers in boxes secured to the lower pair of stringers, an out-  
5 rigger removably and adjustably secured in clamp-boxes to the upper pair of stringers and carrying a side wheel, a folding brace provided with a pivotal clip for securing it to the  
10 outrigger, an adjustable connection connecting the outrigger with the brace, a seat supported over the rear end of the frame, a pair of levers arranged for hand and foot propulsion, a pitman-connection from each lever to a double-  
15 crank shaft, and a speeding-gear from the dou-

ble-crank shaft to the rear main-track wheel, substantially as described.

3. In a railway-velocipede, the lower stringers, D, combined with the uprights F, secured to the rear end thereof, and the upper string-  
20 ers, E, parallel with the lower stringers and secured at their rear ends to the uprights, and at their forward ends provided with downward bends G, secured to said lower stringers, substantially as described.

CHARLES L. COLLIER.

Witnesses:

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