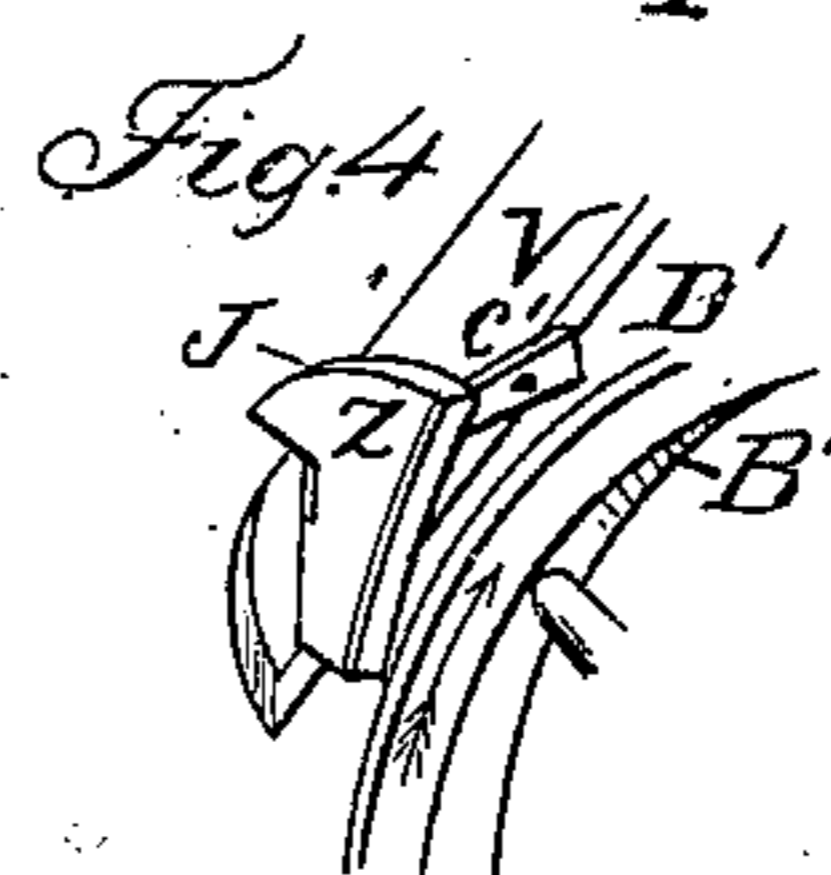
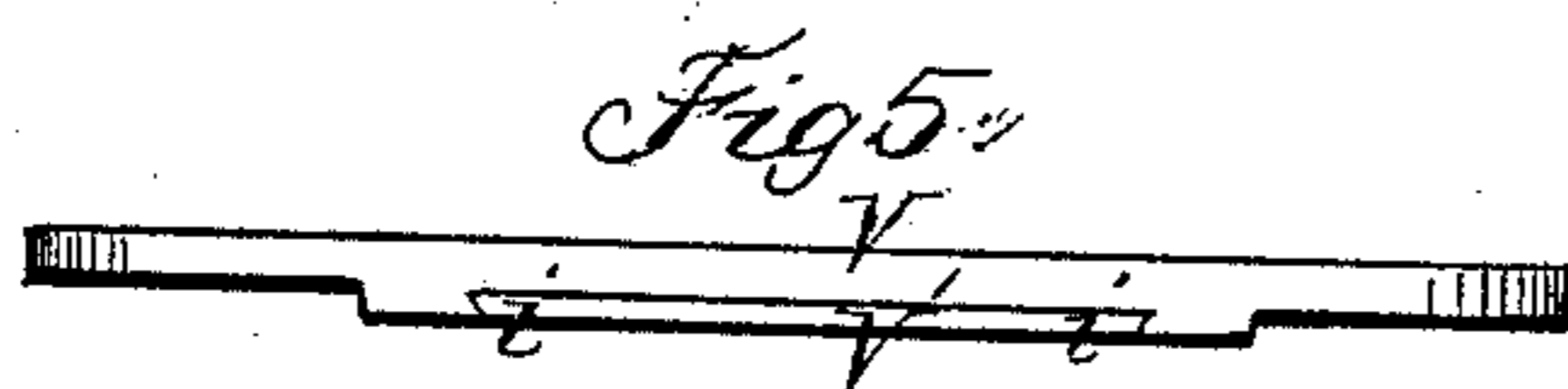
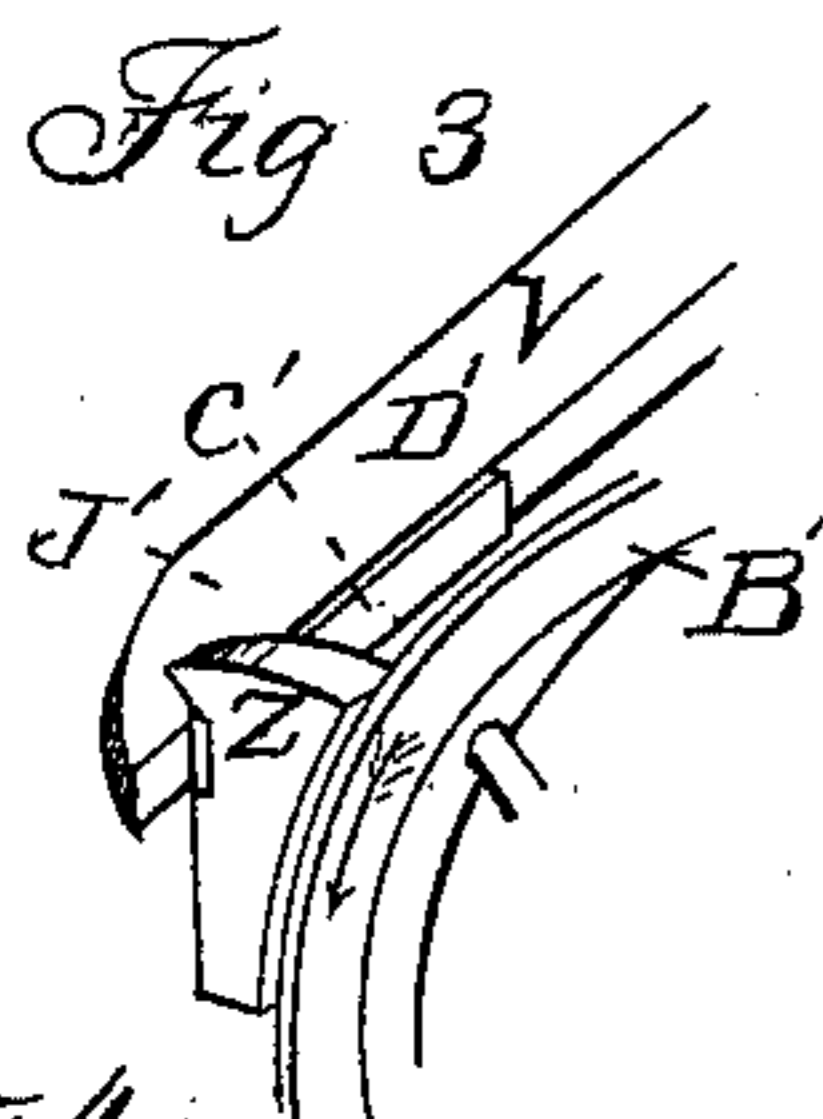
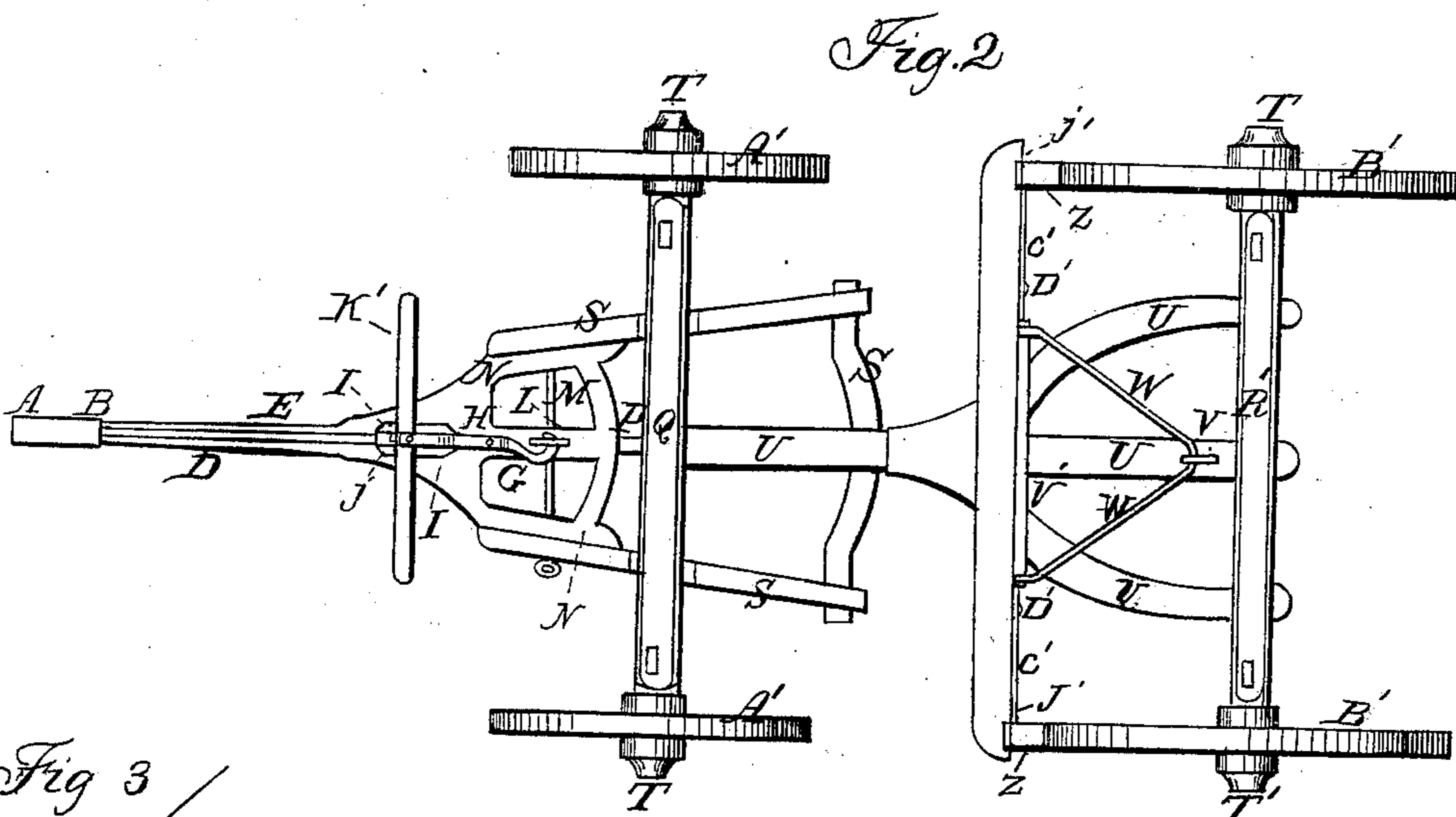
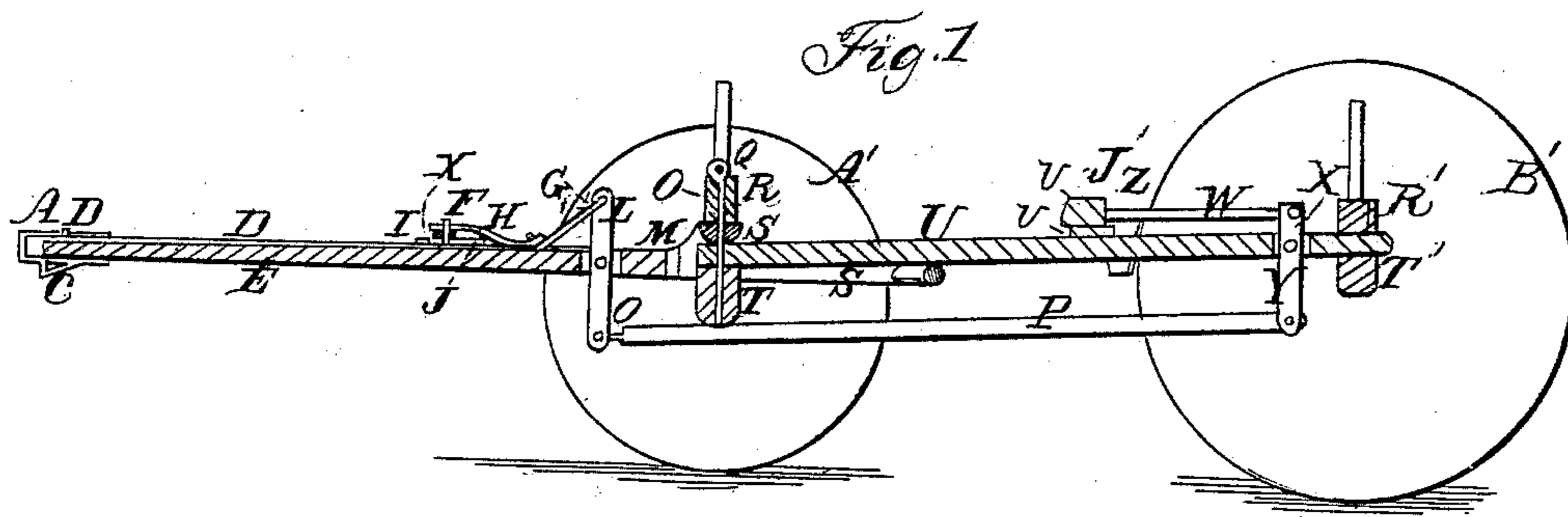


A. LARROWE.

Carriage-Brake.

No. 27.639.

Patented Mar. 27, 1860.



Witnesses;  
M. C. Gutzmer  
Mrs. H. Dodge

Inventor;  
Albertus Larowe

# UNITED STATES PATENT OFFICE.

ALBERTUS LARROWE, OF COHOCTON, NEW YORK.

## SELF-ACTING CARRIAGE-BRAKE.

Specification of Letters Patent No. 27,639, dated March 27, 1860.

*To all whom it may concern:*

Be it known that I, ALBERTUS LARROWE, of Cohocton, Steuben county, State of New York, have invented an Improvement in Self-Acting Carriage Brakes; and I do hereby declare that the following is a full and exact description of its construction and operation, reference being had to the accompanying drawings and to the letters of reference marked thereon, so as to enable others skilled in the art to make and use my invention.

Figure 1, represents a central vertical section, Fig. 2, a top view, Figs. 3, 4, and 5, detached views of parts of the mechanism.

The tongue E, of the carriage represented in Figs. 1, and 2, is provided with a groove for the reception of the brake rod D. A pin B, projecting from the front end of the brake rod passes through a corresponding hole in the ferrule A, which fits loosely over the end of the tongue E. The horses are hitched to a hook C, projecting from the ferrule or a ring attached to the neck yoke so as to abut against the front of the projection C. The other end of the brake rod is formed with a hook G, which passes through the upper end of a vertical lever L, which latter passes through a vertical slot in the rear part N, of the tongue. The lever L, has its fulcrum in the slot at M.

One end of the connecting rod P, is hooked to the lower end of the lever L, at O, while its other end is pivoted to the lower end of a similar vertical lever Y, which passes through and is fulcrumed (at X,) in a slot in the hound piece U. The bent rod W, which extends from the brake V, passes through the upper arm of lever Y.

The brake bar V, (Fig. 5,) is provided with dovetail notches *i, i*, which fit corresponding projections on the stationary bar V', for the purpose of allowing the brake bar V, to slide back and forth.

Rubbers Z, one for each of the two wheels B', B', are provided with arms C', which are pivoted to the brake bar at D', D', so as to allow the rubber to swing on the pivots D', D', while projections J', J', on said rubbers rest on the upper surface of the brake bar V, and prevent the rubbers from dropping down. The faces of the rubbers are such as to fit the periphery of the wheels.

A plate I, is fastened to the part N, of the tongue so as to extend across the groove in the tongue which contains the brake rod D.

The plate I, is slotted at J, and a pin F, extends from the brake rod upward through the slot in the plate I. This pin F, serves as a pivot for the evener X'.

It will be seen that when the horses pull, the strain on the evener X', causes the latter to move forward drawing the brake rod D, with it until the pin F, abuts against the front face of the slot J. This motion of the brake rod pushes the ferrule A, forward and operates also the lever L, so as to cause its lower end to swing back. The lever Y, describes the same motion as lever L, the two levers being connected by means of rod P; thus the upper arm of lever Y, is moved forward and being connected to the brake bar V, by means of the bent rod W, causes the brake bar to move forward so as to remove the rubbers Z, from the circumference of the wheels B', B', as represented in Fig. 1.

When the carriage commences to descend a grade sufficiently steep to require the checking action of the brake, the tendency of the carriage to descend by its own weight, pushes the front end of the tongue forward until it abuts against the front plate of the ferrule A. The horses being hitched to the hook C, of the ferrule as before described and holding back while descending the steep grade the ferrule and tongue will remain in the same position relative to each other until the vehicle has arrived at the bottom of the steep grade when the horses commence again to pull and thereby draw the ferrule forward as seen in Fig. 1.

It will be seen that while the tongue moves forward in the ferrule at the commencement of the descent of the vehicle as above described, the relative action of the parts is the same as if the ferrule were pushed back until its front plate abuts against the front end of the tongue; the brake rod D, moving back together with the ferrule pushes back the upper arm of lever L, and the upper arm of lever Y, describing the same motion as the lever L, draws the brake arm V, backward until the rubbers Z, are in contact with the circumference of the wheels B', B', as seen in Fig. 3, where the arrow denotes the direction in which

the wheels B', revolve. By this means the brake is caused to operate upon the wheels of the vehicle.

Whenever the horses are caused to back the vehicle the action of the ferrule, brake rod, levers, and brake arm is the same as in the case of descending a grade as above set forth, but the rubbers as soon as they come in contact with the circumference of the wheels B', B', (now revolving in the direction of the arrow in Fig. 4,) will be caused to swing upward on their pivots D', D', in consequence of the friction between them and the surface of the tires. Thus when the vehicle is backed the rubbers will not impede the revolutions of the wheels and will in fact not act as a brake.

The bolt M, it will be seen, serves two purposes to wit, it forms the fulcrum for lever L, and it connects the part N, of the tongue to the frame S, of the front part of the vehicle.

When the horses hold back in descending a steep grade the front end of the tongue naturally rises and this position of the tongue with the brake rod D, adds toward throwing back the upper arm of lever L, and thus increases the action of the brakes.

The rod P, may be made in two parts which may be adjusted and bolted together so as to correspond to different lengths of reach.

I am aware that the rubbers of brakes have been hinged so that in the act of backing the friction of the wheels will tend to turn the rubbers upward and inward, and thus relieve the wheels from the action of the brakes, and that such an arrangement is to be found in the patent of B. B. Munroe, dated June 8, 1858. In Munroe's brake how-

ever, the whole strain upon the rubbers in breaking up, is borne by the hinges by which they are attached to the brake arms and as this strain is often very great the hinges are liable to be broken and twisted off. My invention is designed to obviate this objection.

By extending the brake arm out in front of the wheels and by hinging the rubbers as shown the rubbers have a firm and rigid support upon the brake arms when in action, and that too without any great strain upon the hinges. By this arrangement too, I am enabled to use yielding or springing arms to connect the rubbers to the brake arms, so that the upward movement of the rubbers when the carriage is being backed is far more free and easy than it would be if the rubber had to rise up in one particular line. In this way if the wheel should happen to be covered with gravel the arms of the rubbers would spring so that it would not require any very great power to throw them up.

Having described my self-acting carriage brake, what I claim therein as new and desire to secure by Letters Patent, is—

The combination and relative arrangement of the rubber Z, and swinging brake arm C', with the end of the brake bar V, whereby the strain upon the rubber Z, is borne principally by the rigid end of the brake bar directly in front of the periphery of the wheel, and not by the hinge of the rubber, substantially as shown and described.

ALBERTUS LARROWE.

Witnesses:

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