

(No Model.)

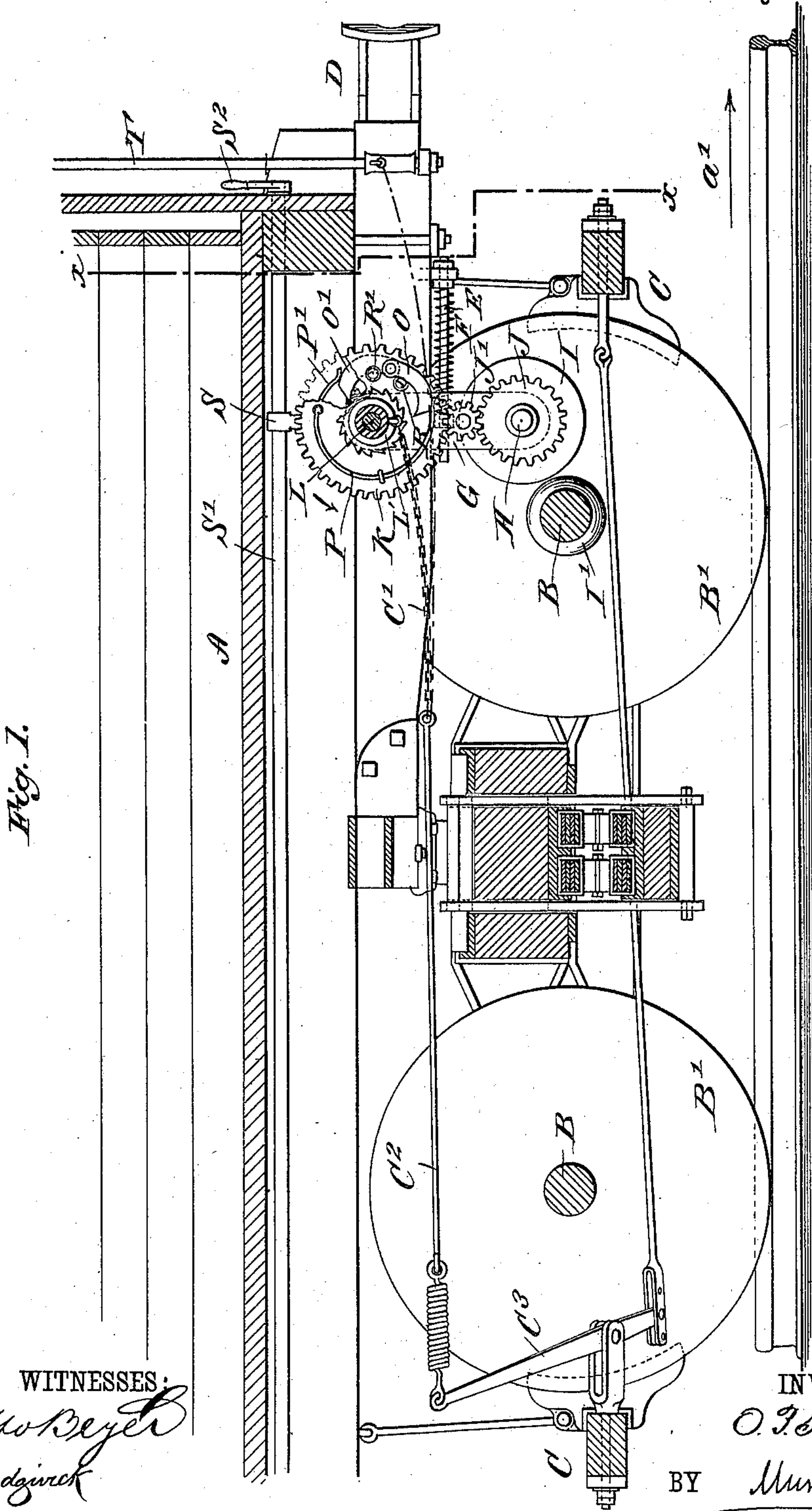
2 Sheets—Sheet 1.

O. P. SMITH.

AUTOMATIC CAR BRAKE.

No. 366,039.

Patented July 5, 1887.



WITNESSES:

Wm Beyer
C. Sedgwick

INVENTOR:

O. J. Smith

BY

Munn & Co

ATTORNEYS.

(No Model.)

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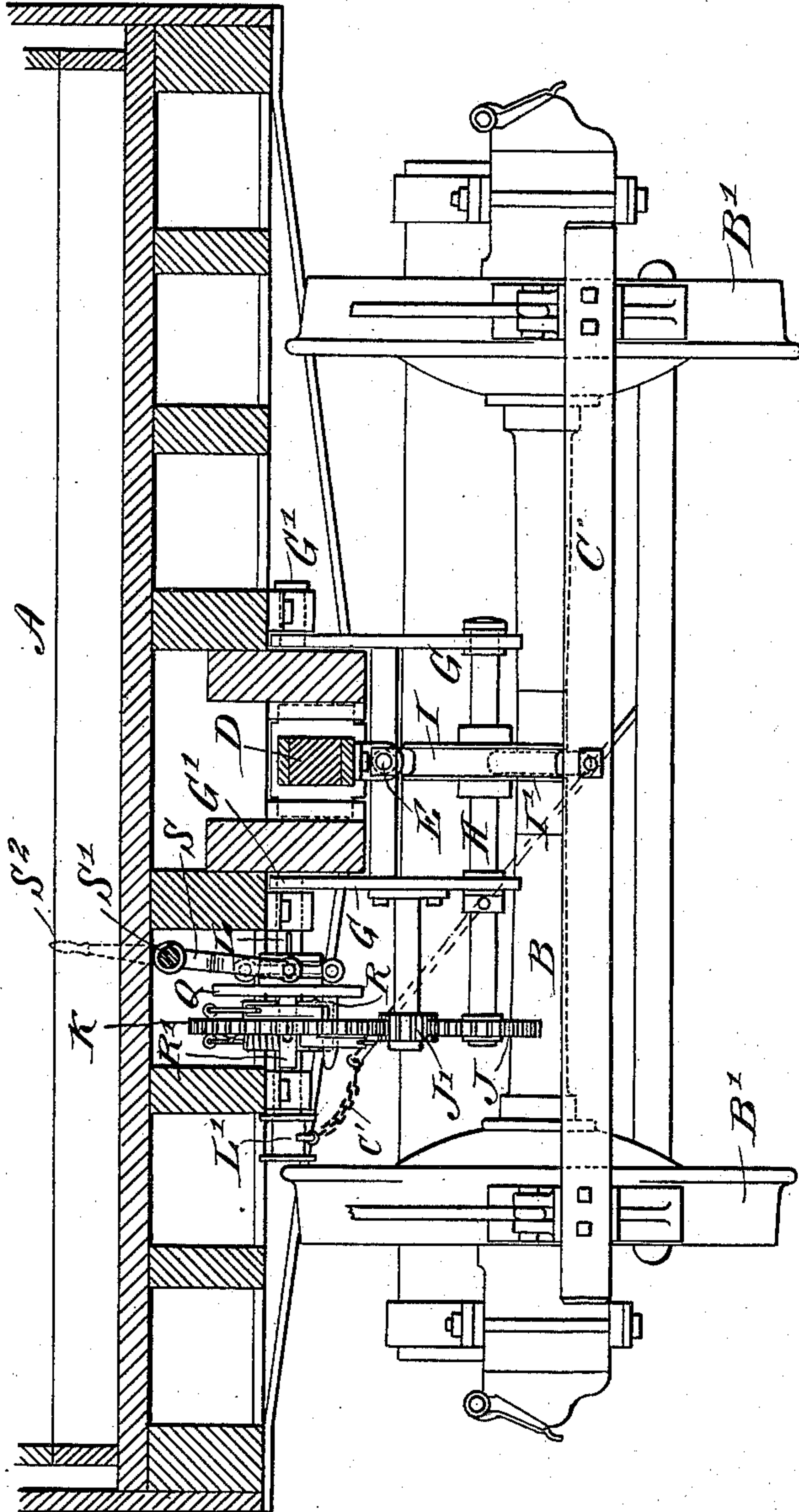
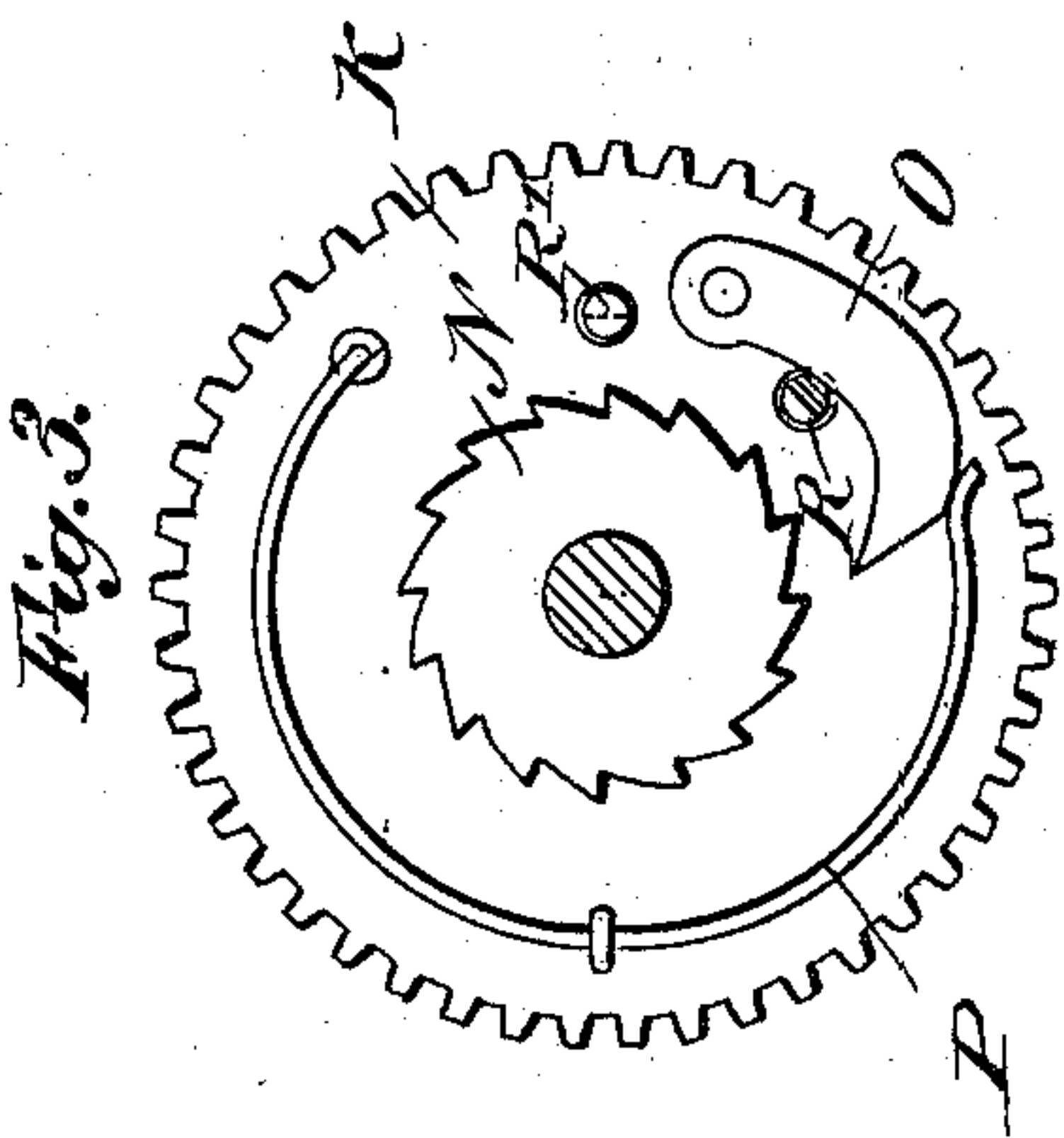
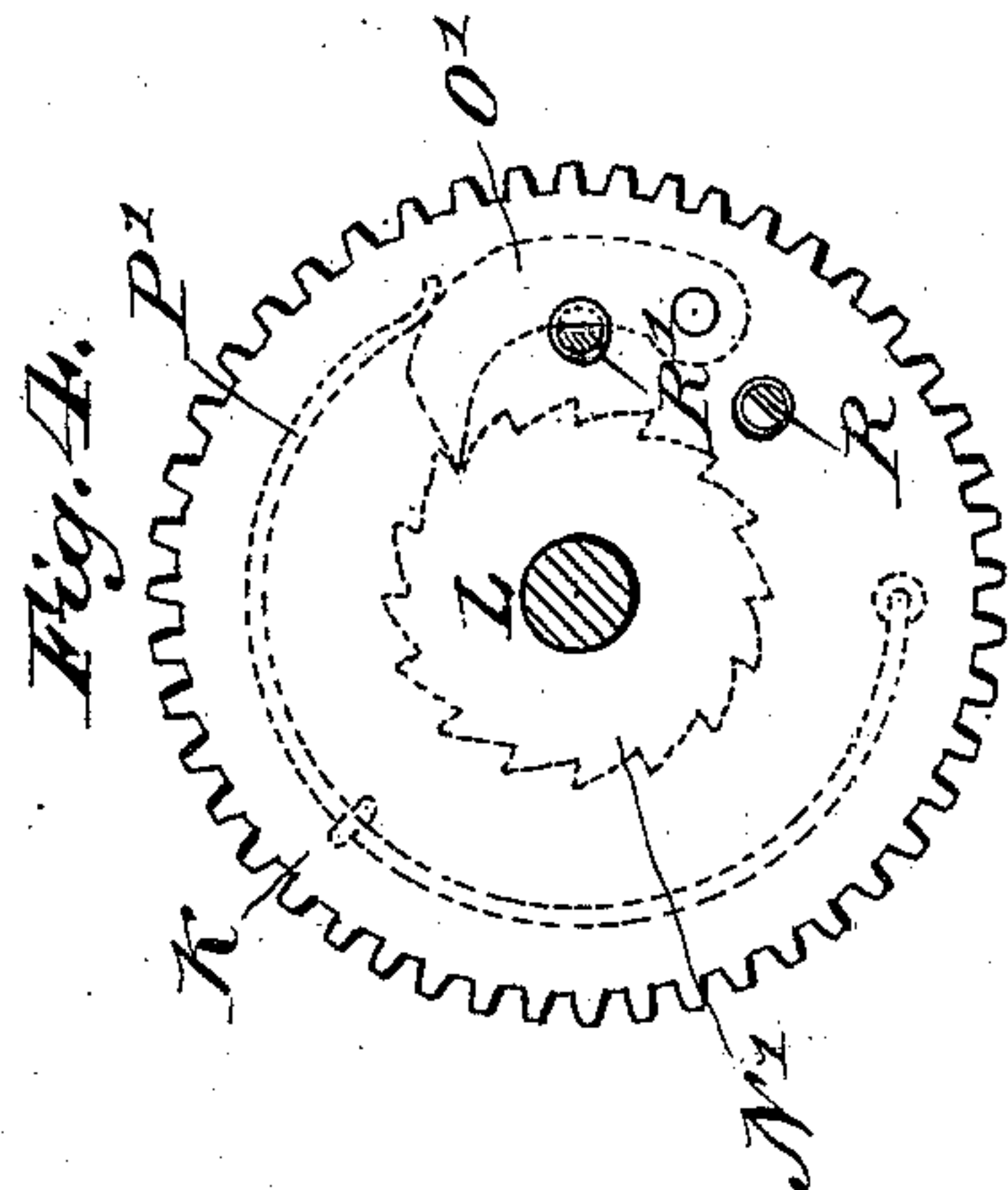
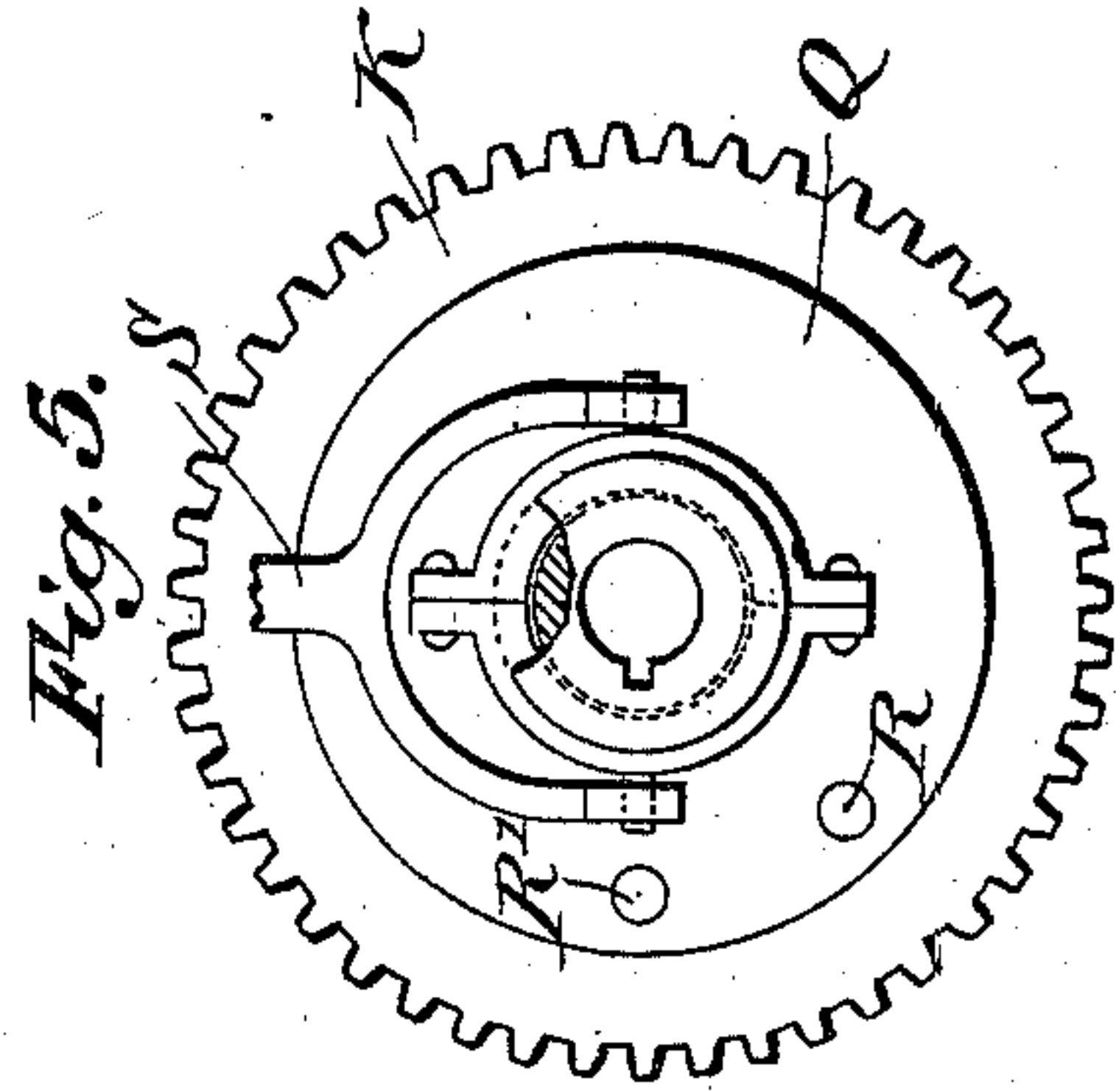
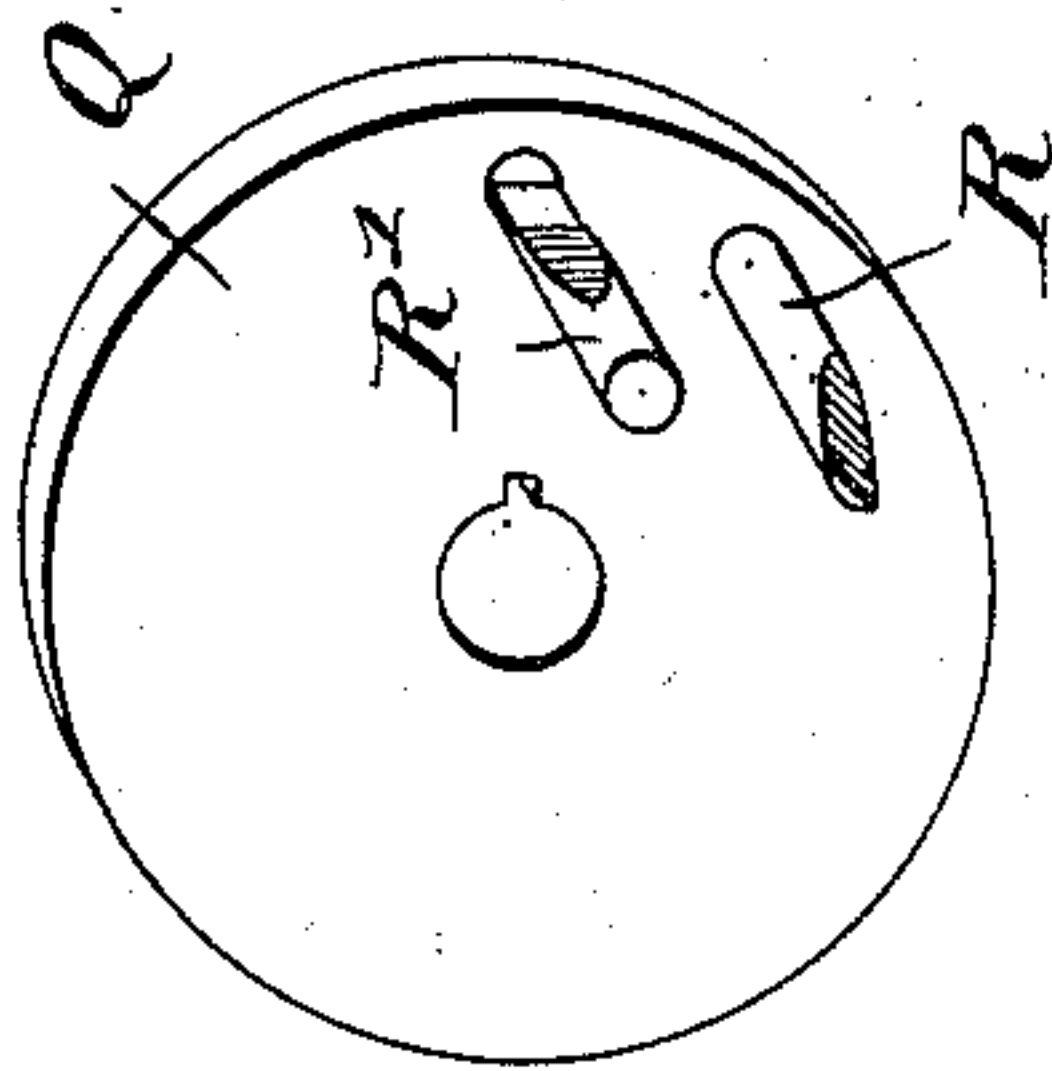


Fig. 2.

Fig. 6.



WITNESSES:
Wm Beyer
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UNITED STATES PATENT OFFICE.

ORSON PHELPS SMITH, OF BUFORD, ILLINOIS.

AUTOMATIC CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 366,039, dated July 5, 1887.

Application filed January 29, 1887. Serial No. 235,890. (No model.)

To all whom it may concern:

Be it known that I, ORSON PHELPS SMITH, of Buford, in the county of Macoupin and State of Illinois, have invented a new and Improved Automatic Car-Brake, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved car-brake which is automatic in operation, and specially adapted for freight-cars.

The invention consists in the construction and arrangement of various parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of a car provided with my improvement. Fig. 2 is a vertical cross-section of the same on the line *xx* of Fig. 1. Fig. 3 is a face view of part of the reversing-gear. Fig. 4 is a similar view of the same with part of the device removed from one side of the gear-wheel, and showing the device on the other side of the gear-wheel in dotted lines. Fig. 5 is a rear elevation of the same; and Fig. 6 is a perspective view of the reversing-disk.

The car A, of any approved construction, is provided with the usual axles, B, and the car-wheels B', on which acts the brake mechanism C in the usual manner. The car A is also provided with the draw-bar D, having the usual lateral motion, and provided on its under side with a rod, E, moving with the draw-bar D, and on which is coiled a spring, F, pressing with one end against the frame G, fulcrumed at G' on the bottom of the car A. In the lower end of the frame G is journaled a shaft, H, carrying the friction-pulley I, adapted to engage the friction-pinion I', secured on one of the axles B. On the shaft H is also secured the gear-wheel J, which meshes into the pinion J', turning loosely on a stud on the frame G, and meshing into the gear-wheel K, secured on the shaft L, which is axial with the fulcrum of the frame G, so that a swinging motion of the said frame G does not disconnect the gear-wheel K from the pinion J. On the shaft L is secured a pulley, L', on which winds one end of

the brake-chain C', secured by its other end to the brake-rod C², connected with the brake-lever C³ of the brake mechanism C. On each face of the gear-wheel K is secured a ratchet-wheel, N or N', respectively, the teeth of which wheels stand in opposite directions, as shown in Figs. 3 and 4. A pawl, O, pivoted on one face of the gear-wheel K, engages the ratchet-wheel N, and a similar pawl, O', engages the other ratchet-wheel, N'. The springs P and P', secured on the said gear-wheel K, act on the pawls O and O', respectively. The reversing mechanism operates the said pawls O and O'; and it consists of a disk, Q, adapted to slide sidewise on the shaft L, being keyed or otherwise fastened to the same, so as to have a sidewise motion and still revolve with the shaft. From one face of the disk Q project the pins R and R', which pass through apertures in the web of the gear-wheel K, and each is provided with a bevel, which operates on the respective pawl O or O' in such a manner that while one pawl is held in contact with its ratchet-wheel the other is disengaged from its respective ratchet-wheel—that is, when the small end of the bevel on one pin is in contact with its respective pawl, then the latter is in mesh with its ratchet-wheel, while the bevel of the other pin is disengaged from its pawl and the latter is held out of contact with its ratchet-wheel. The disk Q can be moved sidewise by a shifting device consisting of an arm, S, engaging the said disk and secured to a shaft, S', held in suitable bearings on the under side of the car A, and extending the entire length of the same. On each end of the shaft S' is secured the lever arm or handle S², extending upward at the ends of the car. The brake-rod C² is also connected, in the usual manner, with the hand-brake T, of any approved construction.

The operation is as follows: The mechanism for operating the brake C is only on one end of the car, and when the latter is in motion in the direction of the arrow *a'* then the friction-wheels I and I' are disengaged as the draw-bar D is pulled outward, and the spring F is inactive. When the car travels forward, as stated, the lever-arm S² on the front end of the car is moved to the left, so that the pawl O is disengaged from its ratchet-wheel N, as shown in Fig. 3, while the pin R' permits the

pawl O' to engage the ratchet-wheel N' by the action of the spring P'. When the engineer now desires to brake the car automatically, he slacks up, so that the draw-head is pushed inward, and the spring F presses the frame G inward, whereby the friction-wheel I is thrown into frictional contact with the pinion I' on the revolving axle B. The latter imparts its rotary motion to the said friction-wheel I, whereby the shaft H is rotated and the train of gear-wheels, consisting of the wheels J, J', and K, is set in motion, and the shaft L is rotated, whereby the brake-chain C' is wound upon the pulley L', and the brake-shoes are applied to the wheels B', in the usual manner; and the car is braked. The wheels B' are held braked until the engineer starts his train again, whereby the draw-bar D is pulled outward and the swinging frame is moved to its former position, whereby the friction-wheels I and I' are disengaged and the chain C' can unwind from the pulley L', thus releasing the brake-shoes from the wheels B'. When the car is coupled at its other end to the preceding car, then the lever-arm S² is moved to the left, so that the pawl O can engage the ratchet-wheel N, while the pawl O' is disengaged from its ratchet-wheel N' by the bevel of the inwardly-sliding pin R'. The axle B now travels in an opposite direction, and when the draw-head is pressed inward by the slacking up of the train then the same operation takes place as above described, with the difference that the friction-wheel I, the train of gear-wheels J, J', and K, and the shaft L revolve in a reverse direction; but the chain C' is again wound upon the pulley L'. When the train is backed up, the friction-wheels I and I' are thrown in contact; but the friction-wheel I, the shaft H, the train of gear-wheels J, J', and K, and the shaft L are rotated, so that the respective pawl O or O' does not engage its respective ratchet-wheel, and the shaft L is not rotated by the gear-wheel K and its connections.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car-brake, the combination, with the draw-bar and a friction-pulley secured on one axle, of a frame pivoted to the under side of the car, a shaft journaled in the lower end of the frame, a friction-wheel on the said shaft and adapted to engage the friction-wheel on the axle, a rod secured to the under side of the draw-bar, a spring on said rod and pressing against the pivoted frame, and a counter-shaft operated from the shaft carried by the swinging frame and adapted to wind up the chain connected with brake-shoes, substantially as herein shown and described.

2. In a car-brake, the combination, with the

draw-bar and a friction-pulley on one axle, of a frame pivoted to the under side of the car, a rod on the under side of the draw-bar, a spring on the rod and pressing against the frame, a shaft journaled in the frame, a friction-wheel adapted to engage the friction-wheel on the axle, a counter-shaft, a drum on said shaft, and intermediate mechanism for operating the counter-shaft from the shaft carrying the friction-pulley, substantially as herein shown and described.

3. In a car-brake, the combination, with a shaft operated from one of the axles of the car and adapted to wind up a chain connected with the brake-shoes, of a wheel mounted on the said shaft, ratchet-wheels secured on the said wheel and placed with their teeth in opposite positions, spring-pawls adapted to engage the ratchet-wheels, and a disk carried by the said shaft and adapted to alternately throw the pawls out of contact with their respective ratchet-wheels, substantially as herein shown and described.

4. In a car-brake, the combination, with a shaft operated from one of the axles of the car and adapted to wind up a chain connected with the brake-shoes, of a wheel mounted on the said shaft, ratchet-wheels secured on the said wheel and placed with their teeth in opposite directions, spring-pawls adapted to engage the said ratchet-wheels, beveled pins engaging the said spring-pawls, a disk carrying the said pins and rotating with the said shaft, and means, as described, for moving the said disk sidewise from the said shaft, so as to cause the said pins to throw the said pawls alternately in and out of contact with the respective ratchet-wheels, substantially as shown and described.

5. In a car-brake, the combination, with a shaft operated from one of the axles of the car and adapted to wind up a chain connected with the brake-shoes, of a wheel mounted on the said shaft, ratchet-wheels secured on the said wheel and placed with their teeth in opposite directions, spring-pawls adapted to engage the said ratchet-wheels, beveled pins engaging the said spring-pawls, a disk carrying the said pins and rotating with the said shaft, a shifting-arm for moving the said disk sidewise, a shaft carrying the said arm and extending the entire length of the car, and hand-levers at the end of said shaft and serving to turn said shaft so as to impart a sliding motion to the said disk, whereby the said beveled pins cause the said pawls to alternately engage their respective ratchet-wheels, substantially as shown and described.

ORSON PHELPS SMITH.

Witnesses:

WILLIAM C. HANKINS,
HENRY N. MILLER.