

(No Model.)

J. KUEFFER.

AUTOMATIC MECHANISM FOR STATION INDICATORS IN RAILWAY CARS.

No. 438,689.

Patented Oct. 21, 1890.

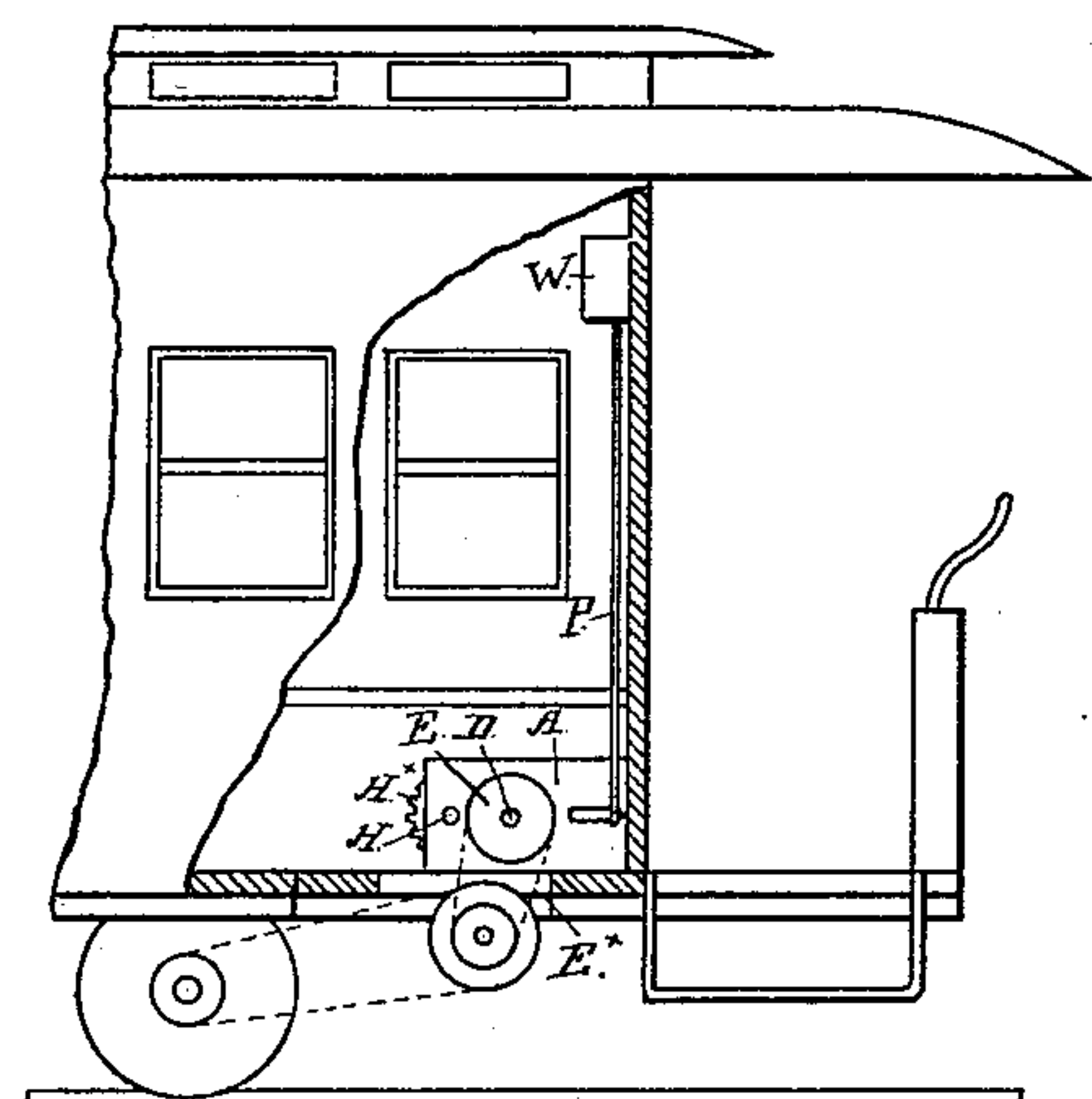


Fig. 1.

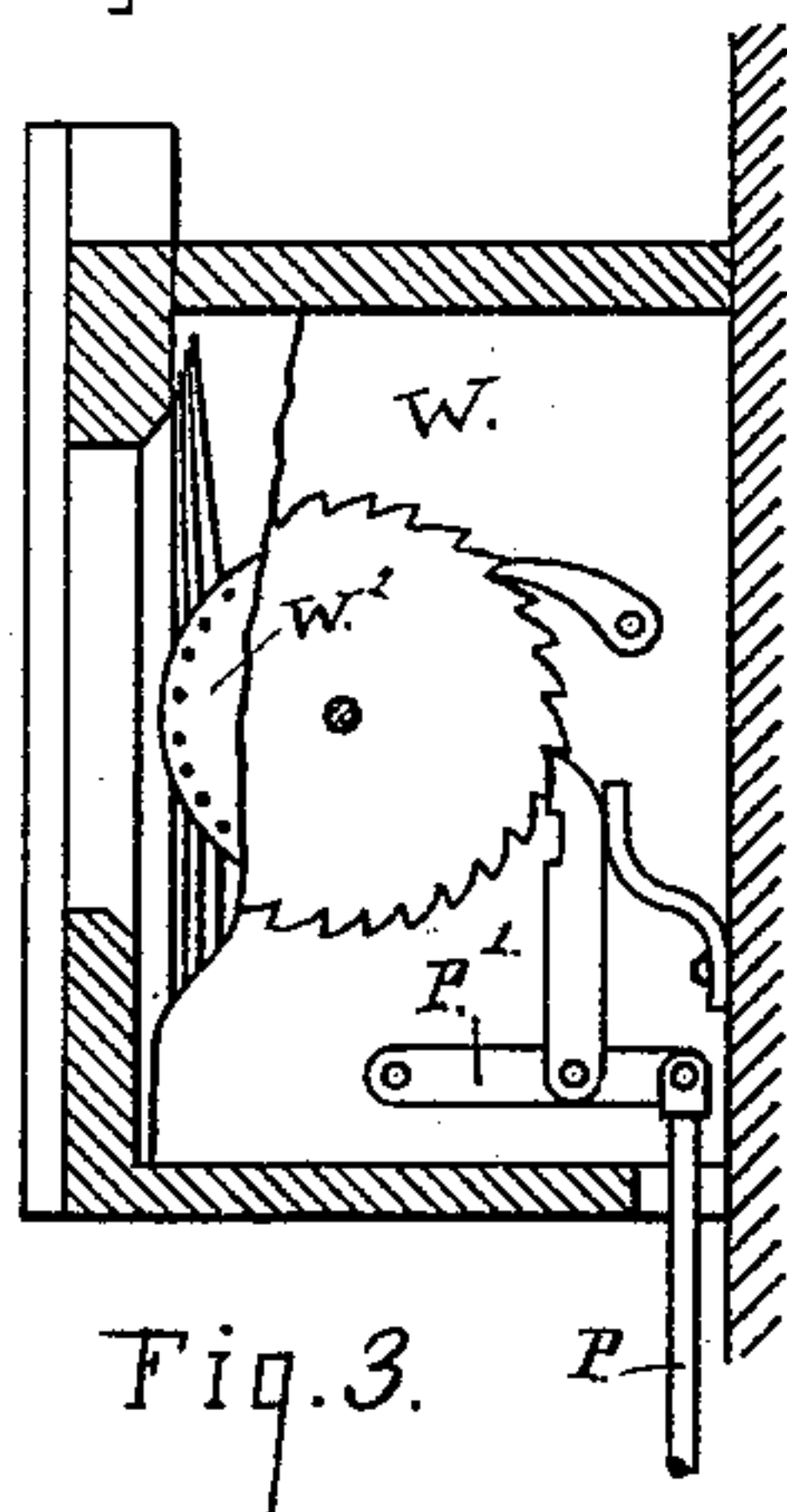


Fig. 3.

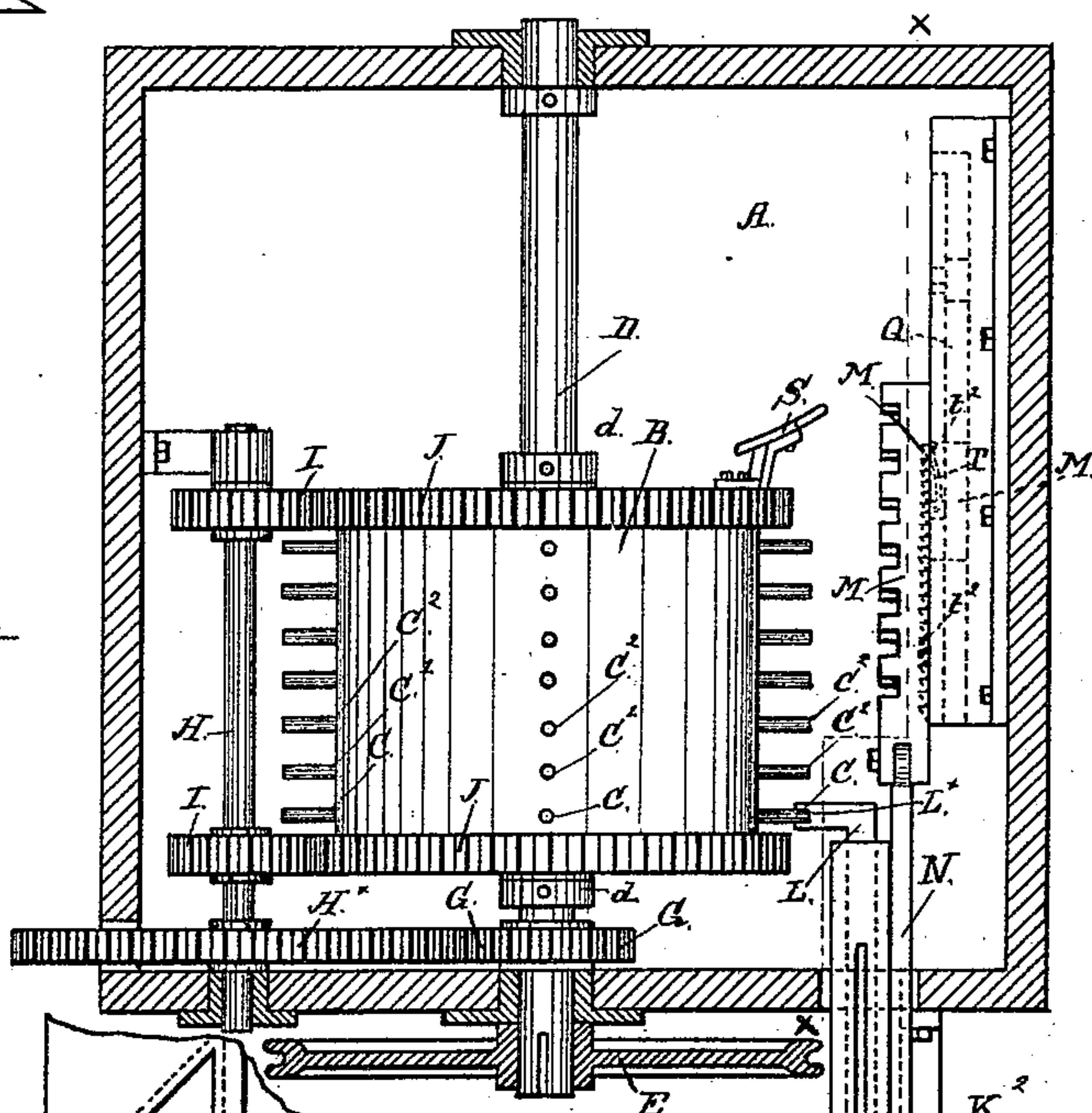


Fig. 2.

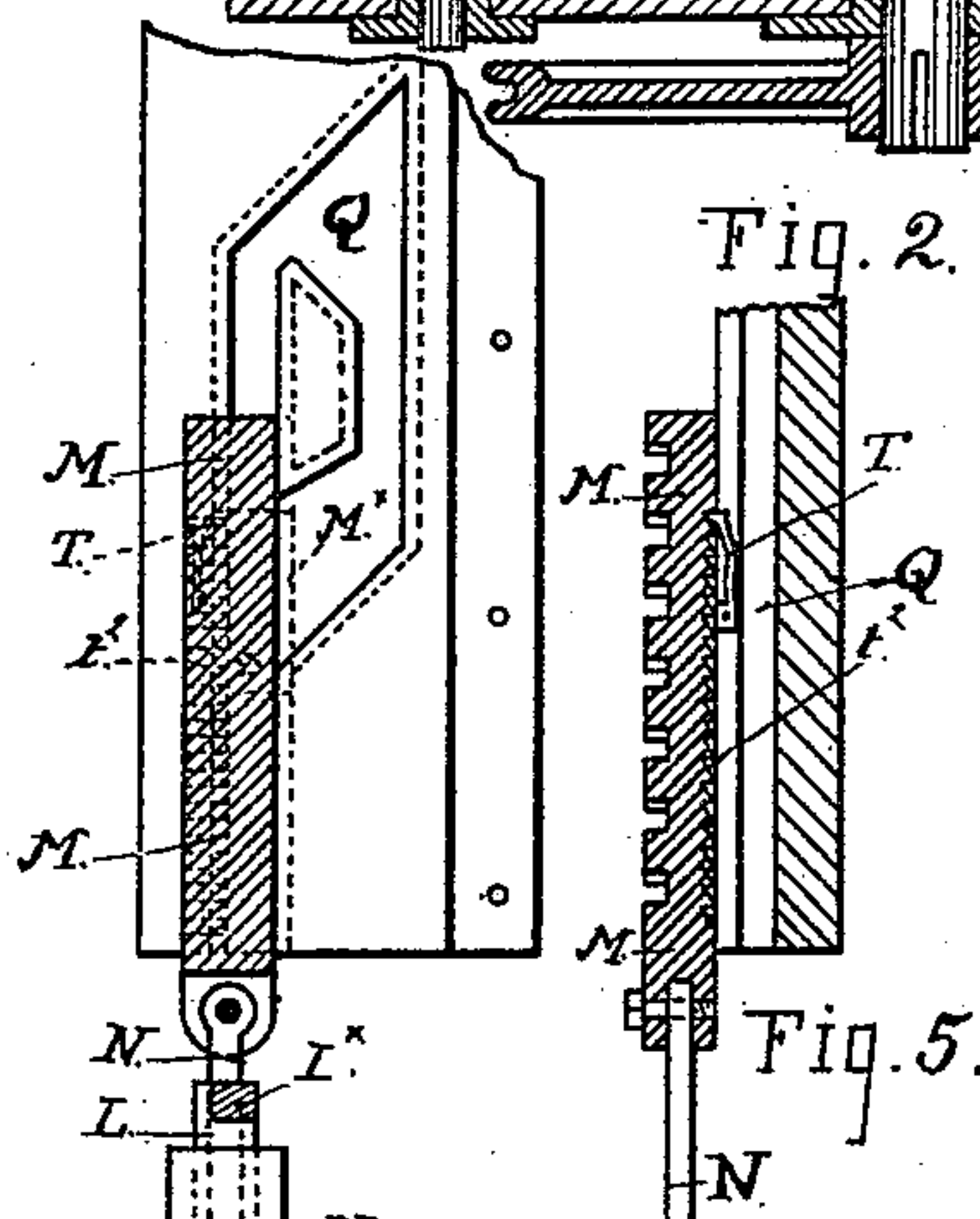


Fig. 5.

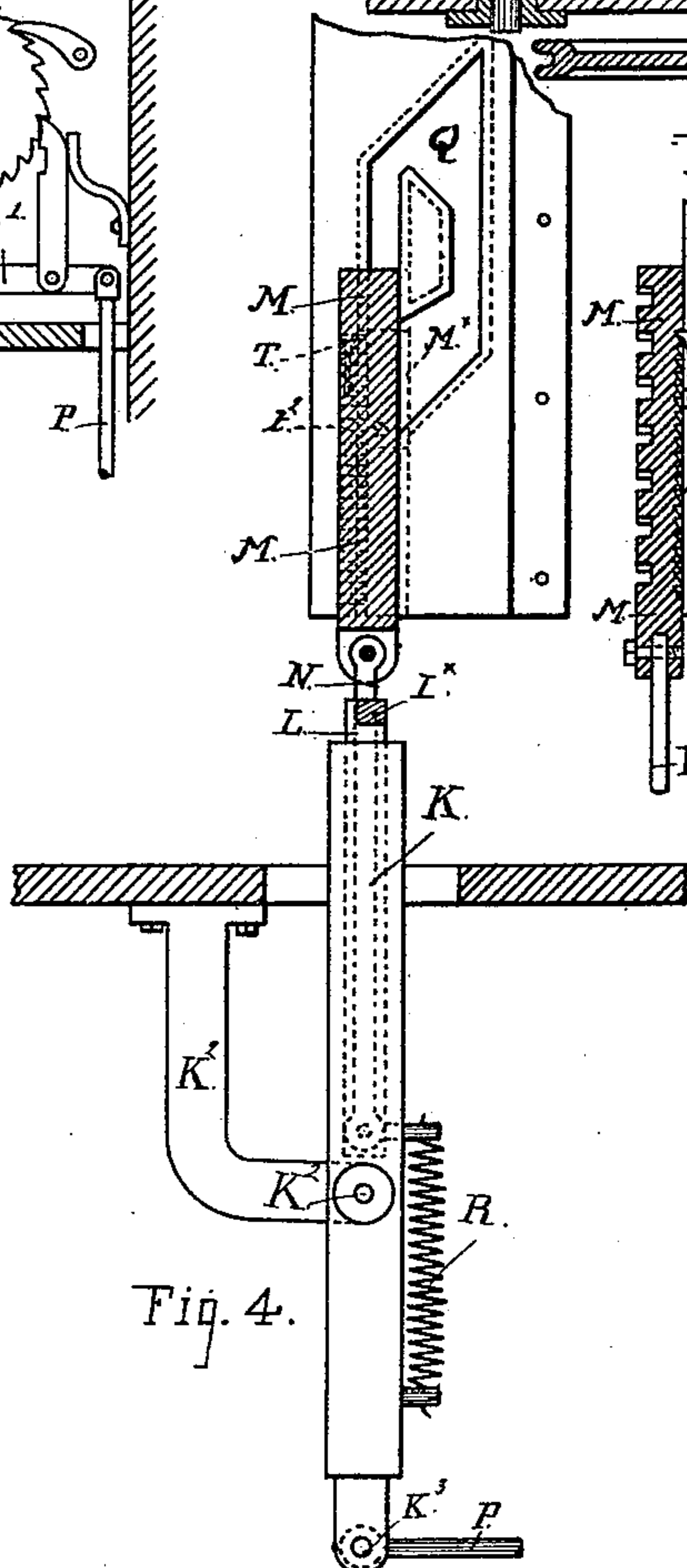


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN KUEFFER, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE AMERICAN INDICATOR AND IMPROVEMENT COMPANY, OF CALIFORNIA.

AUTOMATIC MECHANISM FOR STATION-INDICATORS IN RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 438,689, dated October 21, 1890.

Application filed December 2, 1889. Serial No. 332,352. (No model.)

To all whom it may concern:

Be it known that I, JOHN KUEFFER, a citizen of the United States, residing in the city and county of San Francisco, and State of California, have invented certain new and useful Improvements in Automatic Mechanism for Station-Indicators in Railway-Cars, of which the following is a specification.

My invention relates to mechanism for operating street and station indicators in railway-cars; and it consists in certain novel construction and combination of parts, as hereinafter fully described, producing an automatic mechanism for working an indicator by or from the movement of the car along the track.

The invention has for its object more especially to provide automatic mechanism for indicators on street-car lines where the blocks along the route traveled are of different lengths and the intersecting streets or stations to be indicated are not at regular intervals, but are some at shorter distances and others again at irregular distances.

To such end and purpose my improvements embrace a continuously-rotating drum or short cylinder carrying pins or stops and having movement in one direction upon a fixed axis, such movement being imparted by one of the axles of the car. In working relation to the drum a pivoted lever has one end set to engage the projecting pins, and the other end beyond the pivot is attached to the indicator-operating rod. The pins are arranged in separate sets or series circumferentially around the drum and at various distances apart, according to the intervals between the streets, and by virtue of the continuous rotation of the drum the end of the lever is struck and depressed by pins of that row or series in which the lever is set for operation. This end of the lever is also extensible, and is moved or drawn out by automatic mechanism actuated from the drum in order to set the end of the lever in line with another series of pins after the first series has acted upon the lever. As many pins are provided on the drum as the number of signals to be displayed by the indicator in the round trip,

and in each series or circumferential row as many pins are set as the intervals will permit. The general construction of these parts and mechanisms and the manner of adjusting the same for operation will be understood from the following description and the accompanying drawings.

Figure 1 of the drawings represents an end portion of a street-car with my improved mechanism applied therein for operation. Fig. 2 is a top view of the automatic mechanism on a large scale, the case that contains it, and the driving-pulley on the outside being shown in section. Fig. 3 is an elevation in cross-section of the indicator-box that is fixed inside the car. Fig. 4 is a longitudinal section through the line $x x$, Fig. 2, and looking toward that side which is situated on the right-hand side of the line. Fig. 5 is a longitudinal section of the sliding rack and slot-way.

A indicates the case to protect the parts and furnish also bearings and supports for the mechanism.

B is the drum, and $C C' C^2$, &c., are the separate rows or series of pins.

D is the axle on which the drum turns, and E is a sheave on the end outside the case to give motion to the drum. Power for this purpose is obtained from a sheave or chain wheel on the car-axle and a chain belt F, and the connection is made by intermediate sheaves and a second belt E^* , as shown in Fig. 1, in order to accommodate the connection to the vertical play of the car-body on the running-gear. The shaft D is geared into the drum by the driving-pinion G fixed on the shaft, the spur-gear H^* on the counter-shaft H, and the pinions I I and the spur-gears J J on the drum, this connection being employed to reduce the speed of the drum and obtain a slow even motion. The drum is loose on the shaft, and is confined by collars $d d$.

K is a lever pivoted at K^x outside the box on a bracket R^2 , and having one end playing through a slot in the box, while the opposite end is attached at K^3 to the upright rod P. This rod extends upward to the indicator W, where it is connected to a lever P', which is

part of the indicator mechanism, and by an upward movement it produces rotation of the cylinder W^2 , carrying the name-bearing cards.

The indicator herein represented is of that class which has independent cards or plates bearing the names or matter to be displayed, and loosely hinged or pivoted at one edge to the periphery of a cylinder or skeleton barrel, so that by the rotative movement thereof, step by step, the cards are brought around in successive order, with intervals of rest between, in front of a sight-opening.

L is a slide-bar movable in a groove in the end of the lever K and forming an extensible part thereof, with a toe or projection L^* that is turned toward the drum and sets in the path of the projecting stops. To this slide-connection with a sliding rack M is made by a rod N, and a spring R is applied to draw the slide back against the action of the rack in the contrary direction. An intermittent step-by-step movement of the rack is produced by the wing or inclined plate S on the side of the drum, the pitch of which plate is sufficient to move the slide-bar the space of one tooth at each time of engagement. The rack is held by a spring latch or bolt T in the slotted way Q and notches t^2 in the back of the rack.

The slot or groove in which the rack travels is so formed that at the end of the farthest movement the rack is thrown out of line with the latch and is drawn back to the starting-point by reaction of the spring R. The shape of this groove is seen in Fig. 4, where the straight portion is the part for the rack to travel in during the outward movement, and the remaining portion is shaped to guide the slide back to the starting-point. The groove is dovetailed and the block M^* on the back of the rack is correspondingly shaped.

As thus constructed and combined, the extensible end of the lever is drawn out the distance of one tooth or notch of the side rack at each complete revolution of the drum, and that distance being equal to the space between one circumferential row or set of pins and the next it will be seen that the finger is moved out of engagement with one set and into line with the next set of pins on the

drum. The lever is therefore struck and depressed first by all the pins in one series and then by the pins in the next succeeding series until the toe has been brought into engagement with the pins of the last series, at which time the slide-rack is set back to the starting-point by slipping into and running back along the return-groove to the front again.

It will be readily understood by those persons practically acquainted with the construction of station-indicators of various kinds how the present mechanism is timed and adjusted.

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

1. In automatic mechanism for operating station-indicators, the combination of the continuously-rotating time-cylinder having stop-pins in separate rows or sets, means, as set forth, for operating the cylinder from the travel of the car, the sliding rack and rack-guide, a wing or plate on the cylinder adapted to engage and move the sliding rack, the locking-catch to hold the rack, the rocking lever, extensible toe-piece connected to the rocking lever and held in position for engagement with the sets of stop-pins in succession, and the spring to bring back the rack to the starting-point, for operation as set forth.

2. The combination of the continuously-rotating time-cylinder B, deriving motion from the travel of the car and having stops C C' C^2 , &c., arranged circumferentially in separate sets, as described, the sliding rack M, slotted rack-guide with return-guide slot Q, locking-catch T for holding the rack in the guide, rocking lever K, extension toe-piece L in said rocking lever having connection with the sliding rack to be drawn out thereby, the coil-spring R, connected to the toe-piece for drawing it back, and indicator-operating rod P, for operation as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

JOHN KUEFFER. [L. S.]

Witnesses:

CHAS. E. KELLY,
EDWARD E. OSBORN.