(No Model.)

2 Sheets—Sheet 1.

M. ANTHONY.

STATION INDICATOR.

No. 418,346. Patented Dec. 31, 1889.

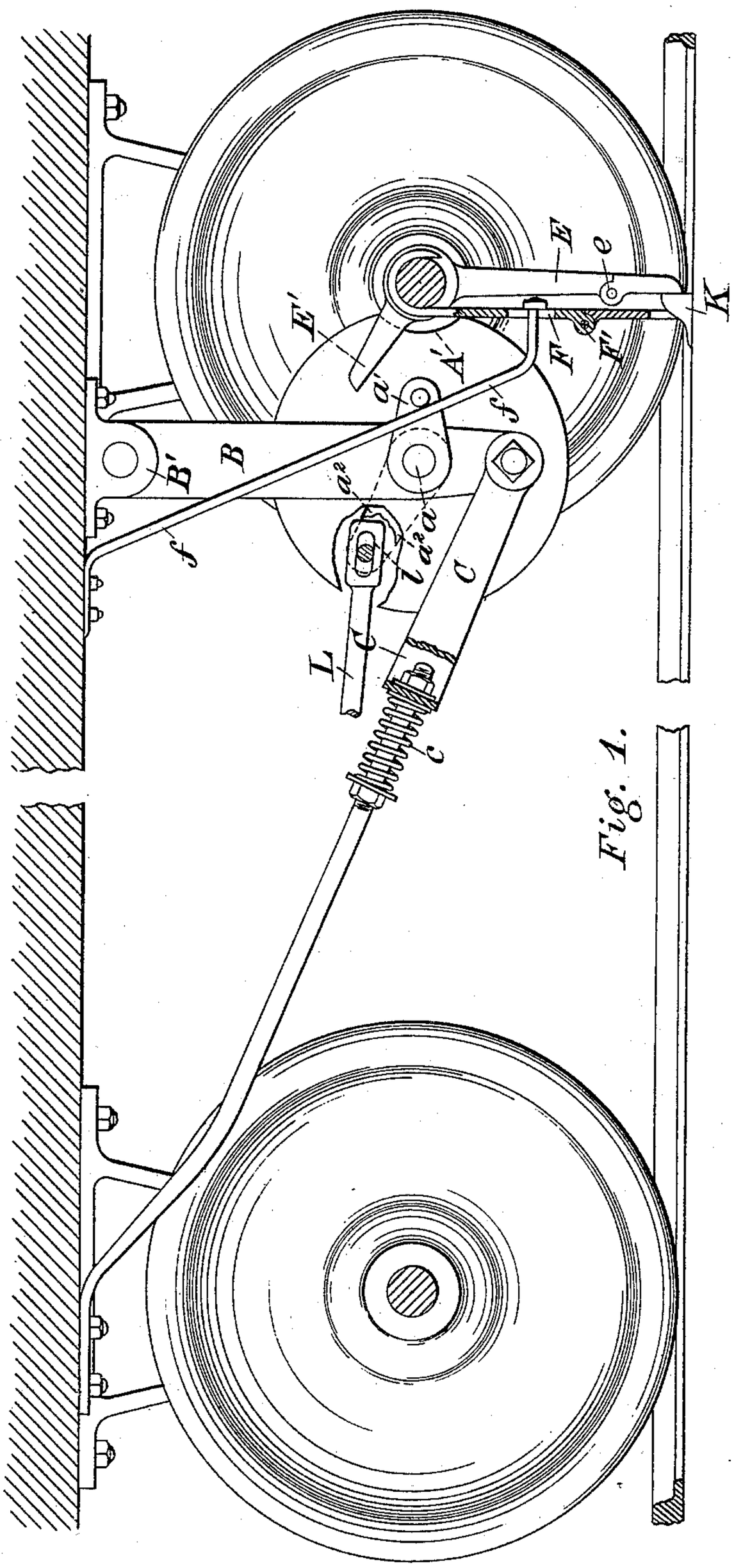


Fig. 1.

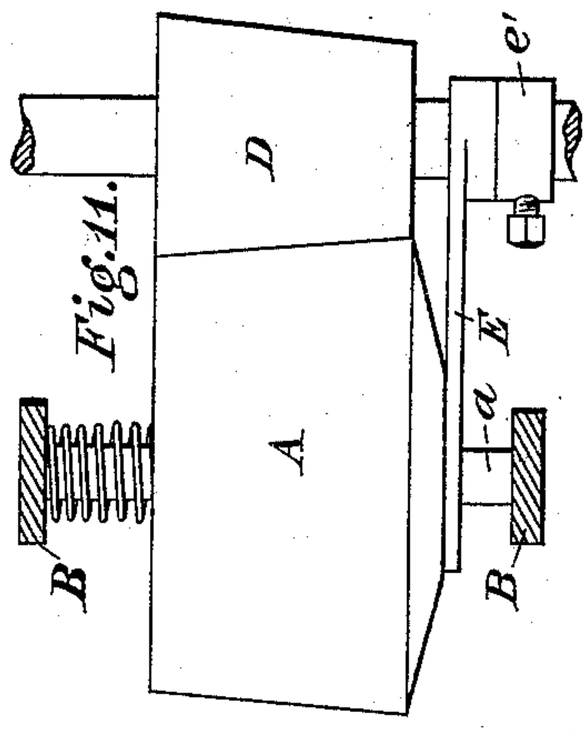


Fig. 11.

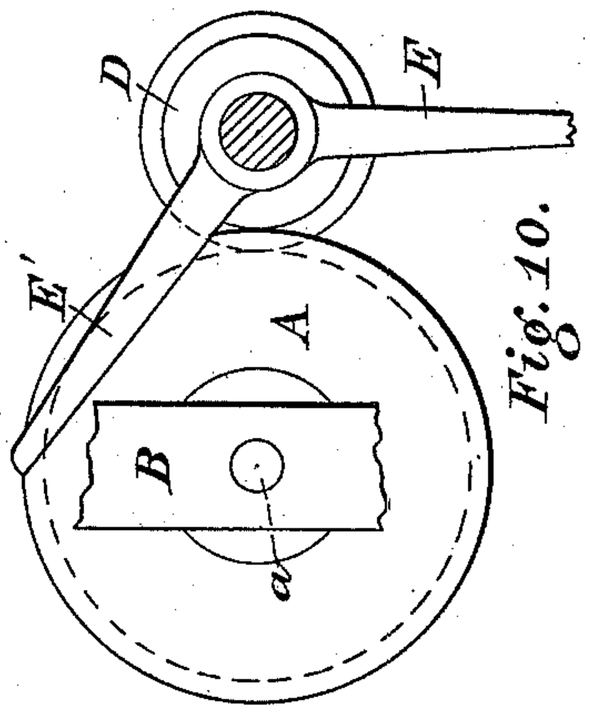


Fig. 10.

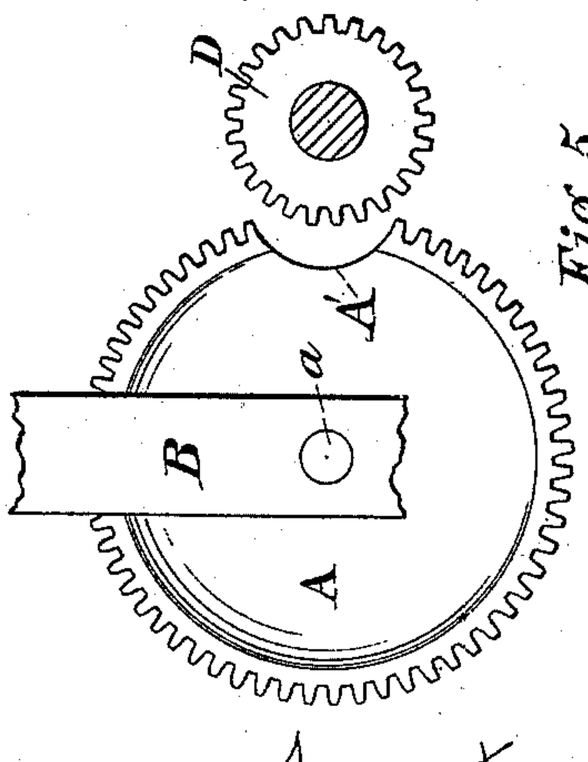


Fig. 5.

Witnesses:
Geo. H. Uffinger.
W. E. B. Lucas.

Inventor.
Mark Anthony
By his Atty. W. H. Smyth

(No Model.) 2 Sheets—Sheet 2.

M. ANTHONY.

STATION INDICATOR.

No. 418,346. Patented Dec. 31, 1889.

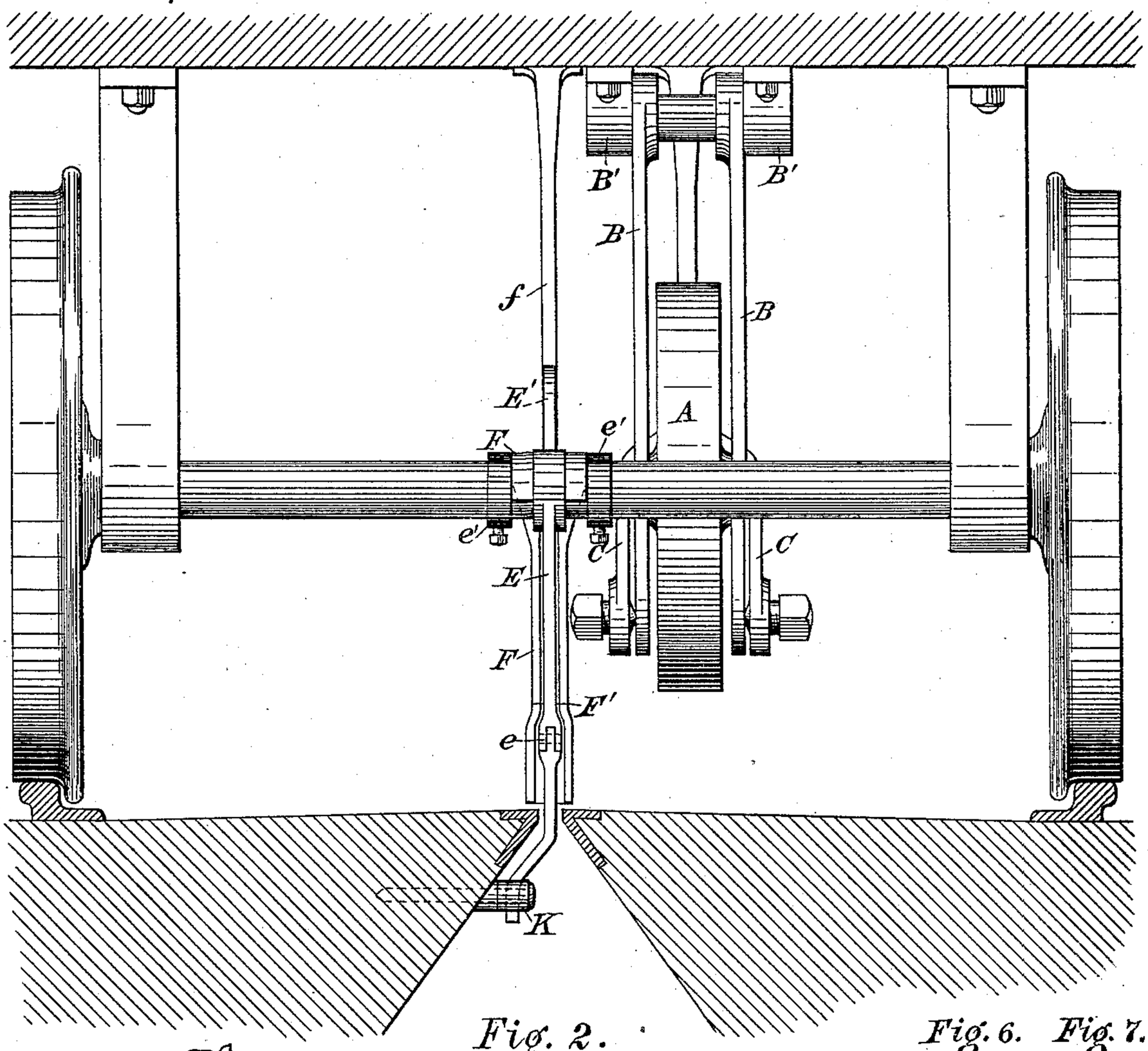


Fig. 2.

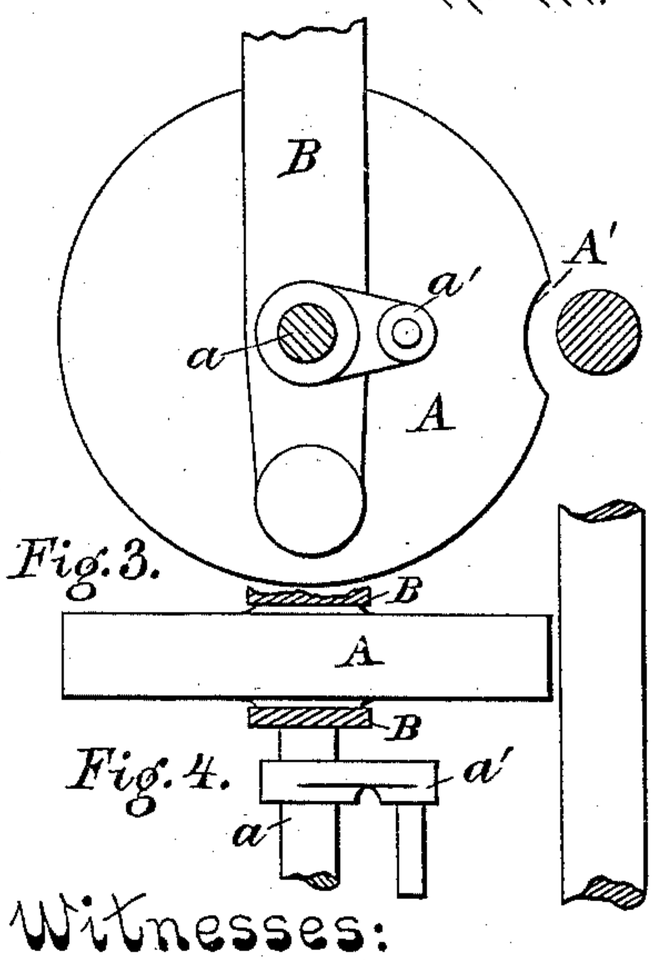


Fig. 3.

Fig. 4.

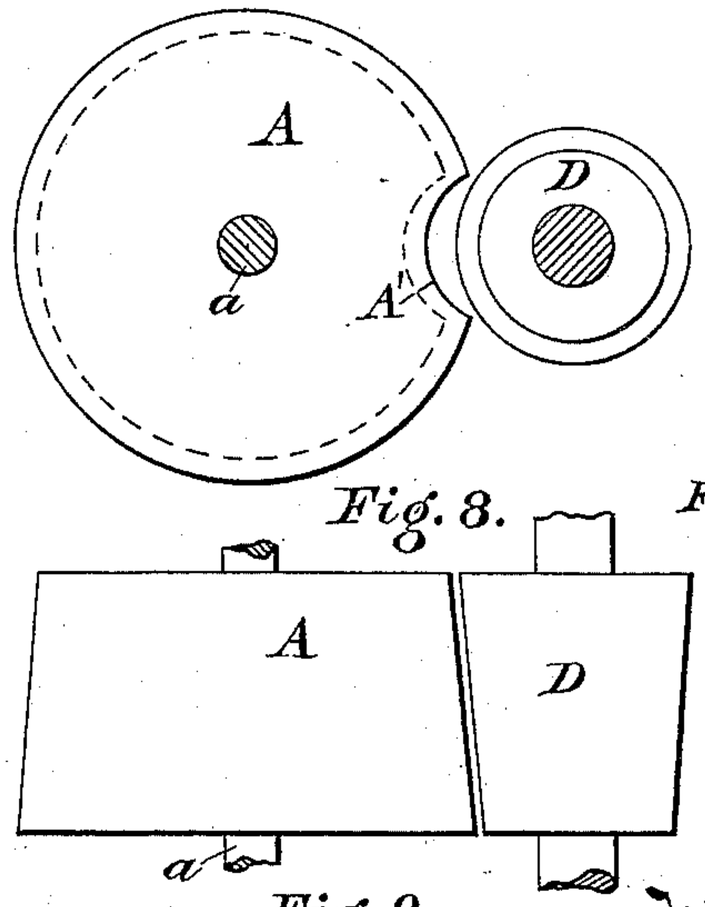


Fig. 8.

Fig. 9.

Fig. 6.

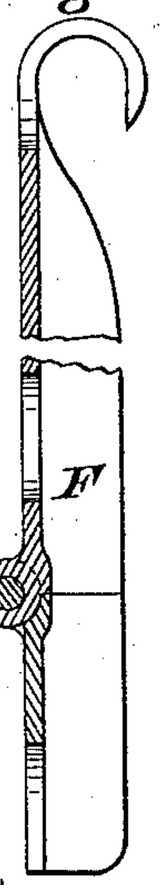
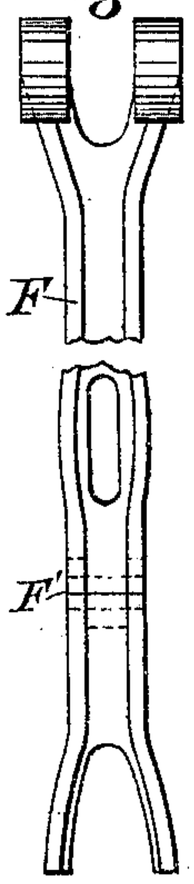


Fig. 7.



Witnesses:

Geo. H. Weffinger.

W. C. B. Lucas.

Inventor.

Mark Anthony

By his Atty. W. T. Smyth

UNITED STATES PATENT OFFICE.

MARK ANTHONY, OF SAN FRANCISCO, CALIFORNIA.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 418,346, dated December 31, 1889.

Application filed March 8, 1888. Serial No. 266,609. (No model.)

To all whom it may concern:

Be it known that I, MARK ANTHONY, a citizen of the United States, residing in the city and county of San Francisco, and State of California, have invented an Improved Mechanism for Operating Street or Station Indicators; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an improved mechanism for operating street or station indicators.

It consists, essentially, in the employment of a wheel loosely journaled in a convenient position under the car, a portion of the periphery of which is removed, and another wheel secured to car-axle in such position that were it not for the notch in the periphery of the first wheel the peripheries of the two wheels would be in working-contact; and also in the employment of a hanging lever adapted to be moved by a stationary obstruction in the street, the lever being so arranged as to rotate the first wheel through the arc occupied by the notch, and so bring the two wheels into working contact or engagement with each other, and other details of construction, which will be fully explained hereinafter.

The objects of my invention are, first, to provide a mechanism whereby any indicator in which the names of streets or stations are successively exposed may be operated automatically; second, to so arrange the device that the obstruction in the street shall be only required to throw the operating mechanism into gear, the work of operating the indicator being performed by a rotating part of the car. I attain these objects by the device illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the running-gear of a car. Fig. 2 is an end elevation of the running-gear of a car; Figs. 3 and 4, side elevation and plan, respectively, of notched wheel A, operated directly from the axle; Fig. 5, an elevation of a modification showing gear-teeth on the peripheries of wheels A and D; Figs. 6 and 7, section and rear elevation of lever-guard; Figs. 8 and 9, elevation and plan, respectively, showing A and D as truncated cones; Figs. 10 and 11, side elevation and plan, respectively, of modification showing A and D as truncated cones, A having no notch in its periphery.

Like letters refer to similar parts in the various views.

Referring to the accompanying drawings, A is a wheel; A′, a notch or recess in the periphery of A; *a*, crank-shaft upon which the wheel A is secured; *a′*, crank; B, a hinged-hanging bracket, in the lower end of which the crank-shaft *a* is loosely journaled; B′, hinged joint at the upper end of B; C, spring-brace; *c*, spring in brace C; D, wheel secured concentrically on car-axle; E, hanging lever loosely journaled on car-axle; E′, upper extension of E; *e*, hinged joint in E; *e′*, collars to prevent lateral motion of E; F, hinged guard or protector; F′, hinged joint in F; *f*, brace of F; K, obstruction in the street.

The operation of my device is as follows: When in a normal position—that is, when the car is traveling between the stations or streets—the wheel A remains idle and its position is such that were it not for the notch A′ the peripheries of the wheels A and D would be in contact. The car in its progress carries the hanging lever E into contact with a stationary obstruction K, which causes the lower end of the lever E to be swung backward relatively to the car and its upper end E′ downward, so that E′ presses the crank *a′* downward, rotating the wheel A sufficiently to bring the periphery of A into contact with that of wheel D. The continued motion of the car-axle or car-wheel causes the wheel A to revolve by frictional contact with D for a complete revolution till the contact is again broken by the notch A′ coming again into its original position. The hanging lever E returns to its normal position by gravity or a suitable spring. The spring-brace C, one end of which is attached to hinged hanging bracket B and the other end is attached to any suitable part of the car, is for the purpose of pressing the wheel A firmly against D, and also to admit of automatic adjustment to inequalities on the peripheries on either wheel. The spring in this brace may be replaced by a suitable weight. In order to prevent the lever E from being operated by other than the obstruction placed for that purpose,

the guard F is provided. It surrounds the lever E on three sides—the front and two lateral sides—with the exception of a short distance near the lower extremity, where it is open in front as well as behind. It is secured in its position by any suitable means, which may be adapted to any peculiar construction of the car to which the apparatus is applied. I have shown for this purpose a brace which is attached to the guard F at its lower end, the other end of the brace being attached to the car at a suitable distance forward. Both guard F and lever E are supplied with hinges near their lower ends, which admit of their passing over obstructions when the car is moving in an opposite direction to that in which they are intended to act, or when used on cable cars for the purpose of raising them out of the slot. It is further intended that this guard F shall act as a fender in the slot of a cable road where it passes round a curve to open the slot, which in such places is frequently arranged to close after the grip-shank has passed through. The motion may be transmitted to the indicator by any of the well-known devices for this purpose, such as sprocket-wheel and chain, gears to suit the requirements of the particular kind of indicator to be operated, or crank and connecting-rod. When a connecting-rod is used, the crank-pin operates in a slightly-elongated hole, so as to allow the lever E to rotate the wheel A sufficiently to bring its periphery into contact with wheel D without operating the indicator during this motion. When desirable, this lost motion of the connecting-rod may be allowed for at its opposite end by a similar or any other suitable device. I prefer the manner shown in the drawings, as even the connecting-rod, which may in some cases be of considerable length and weight, is not moved. It is evident that the wheel A may receive motion from any rotating part of the car—such as from the periphery of any of the wheels or from either side of the wheels by the intervention of a roller, or directly from an axle—the size of the wheel A being varied to suit the various requirements. The wheels A and D can be varied almost indefinitely as to shape and surface of periphery.

In the drawings I have shown various modifications. Fig. 5 show the peripheries supplied with gear-teeth. Figs. 8 and 9 show wheels A and D as truncated cones. V or other shaped grooves may be also supplied to the peripheries. Figs. 10 and 11 show a further modification, in which the wheels A and D are truncated cones, and are thrown into contact by the bell-crank lever moving the cone A along its shaft, to which it is secured by a spline or feather, which admits of end motion, but prevents motion of wheel A and shaft *a* relatively one to the other. In this case the length of the obstruction in the street determines the period during which the wheel A is rotated by the wheel D, the wheel A being returned to its normal position by a weight or spring, as shown in Fig. 11. It is not necessary that the lever E and guard F should be hung on the axle, though I consider this the most suitable place. They may be hung to the bracket suspended from the bottom of the car, in front or behind the axle, or above or below it, or even to the axle of wheel A.

In all other devices to my knowledge in which an obstruction in the road is used to determine the point at which the indicator shall operate it has been the custom of using the obstruction directly as a means of operating the indicator by the motion of the car. The consequence has been that, as the indicator requires some considerable force to operate it, a severe jar takes place when the operating-lever comes in contact with the obstruction. This is entirely obviated by the device I employ, the obstruction being used merely to throw the operating mechanism into working contact with a rotating part of the car, which accomplishes the actual work of operating the indicator.

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

1. In a station-indicator-operating device, the combination of a notched wheel loosely journaled in a hinged hanging bracket attached to a car or truck and another wheel concentrically secured to an axle of the car, said wheels being so placed in relation to one another that the notched wheel may be intermittently rotated by contact between the two wheels, and a stationary obstruction in the roadway or tunnel of a cable road, and any suitable device for partially rotating the notched wheel by coming in contact with a stationary obstruction, a station-indicator located on the car, and a suitable connecting mechanism between the notched wheel and the indicator for the purpose of operating it by the rotation of the notched wheel, substantially as described.

2. In a station-indicator-operating device, the combination of a wheel a segmental portion of the periphery of which is removed, said wheel being loosely journaled in suitable brackets attached to the bottom of a car or truck, and another wheel secured concentrically on an axle of the car, the wheels being suitably placed in relation to one another that the notched wheel may be intermittently rotated by contact between the two wheels, a stationary obstruction in the roadway or tunnel of a cable road, and a lever or other suitable mechanism attached to the car for rotating the notched wheel into contact with the wheel secured to the car-axle, said lever or other suitable mechanism being operated by the stationary obstruction in the roadway or tunnel of a cable road, a station-indicator located on the car, and a suitable connecting mechanism between the notched wheel and the indicator for the purpose of operating it by the rotation of the notched wheel, substantially as described.

3. In a station-indicator-operating device, the combination of a notched wheel loosely journaled in a hinged hanging bracket attached to the car or truck, a crank-pin secured to the side of the notched wheel, a pivoted lever depending from the car or truck or from a suitable shaft attached to the car or truck, said lever being arranged to intermittently rotate the notched wheel into contact with an axle of the car or a wheel concentrically secured on the axle of a car by means of the crank-pin attached to the notched wheel, and a stationary obstruction in the street which operates the lever by the forward motion of the car, a station-indicator located on the car, and a suitable connecting mechanism between the notched wheel and the indicator for the purpose of operating it by the rotation of the notched wheel, substantially as described.

4. In a station-indicator-operating device, the combination of a notched wheel loosely journaled in a hinged hanging bracket attached to the car or truck and another wheel secured concentrically on an axle of the car, said wheels being suitably placed in such relation to one another that the notched wheel may be intermittently rotated by contact between the two wheels, a spring-brace one end of which is attached to the hinged hanging bracket in which the notched wheel is journaled, the other end of the brace being secured to any suitable part of the car or truck for holding the notched wheel in contact with the wheel on the axle, a stationary obstruction in the roadway or tunnel of a cable road, and a pivoted lever depending from the car, suitably located to be brought into contact by the forward motion of the car with the stationary obstruction in the roadway or tunnel of a cable road for the purpose of partially rotating the notched wheel by means of the crank-pin attached thereto, a station-indicator located on the car, and a suitable connecting mechanism between the notched wheel and the indicator for the purpose of operating it by the rotation of the notched wheel, substantially as described.

5. In a station-indicator-operating device in which a pivoted lever depending from the car brings the indicator-operating mechanism into working contact with a rotating portion of the car, the lever being operated by being brought into contact with a stationary obstruction in the roadway or tunnel of a cable road, the combination of the pivoted operating-lever E and the guard *f*, which surrounds the lever E on three sides, the front and two lateral sides, with the exception of a short distance near the extremity, where it is open in front, the guard *f* being suitably connected to the car, substantially as described.

6. In a station-indicator-operating device, the combination of a notched wheel loosely journaled in a hinged hanging bracket attached to the car or truck and another wheel secured concentrically on an axle of the car, said wheels being suitably placed in relation to one another that the notched wheel may be intermittently rotated by contact between the two wheels, a spring-brace one end of which is attached to the hinged hanging bracket in which the notched wheel is journaled, the other end of brace being attached to any suitable part of the car or truck for holding the notched wheel in contact with the wheel on the axle, a crank attached to the axle of the notched wheel, and a connecting-rod or pitman attached to the crank, said connecting-rod extending to and being connected with any suitable indicator attached to the car, which may be operated by reciprocating motion, the hole in the connecting-rod, in which the crank-pin operates to reciprocate it, being slightly elongated in the direction of the length of the connecting-rod, a stationary obstruction in the roadway or tunnel of a cable road, and a pivoted lever depending from the car or truck, suitably located to be brought into contact by the forward motion of the car with the stationary obstruction in the roadway or tunnel of a cable road for the purpose of partially rotating the notched wheel by means of the crank-pin attached thereto, substantially as described.

MARK ANTHONY.

Witnesses:
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W. E. B. LUCAS.