

(No Model.)

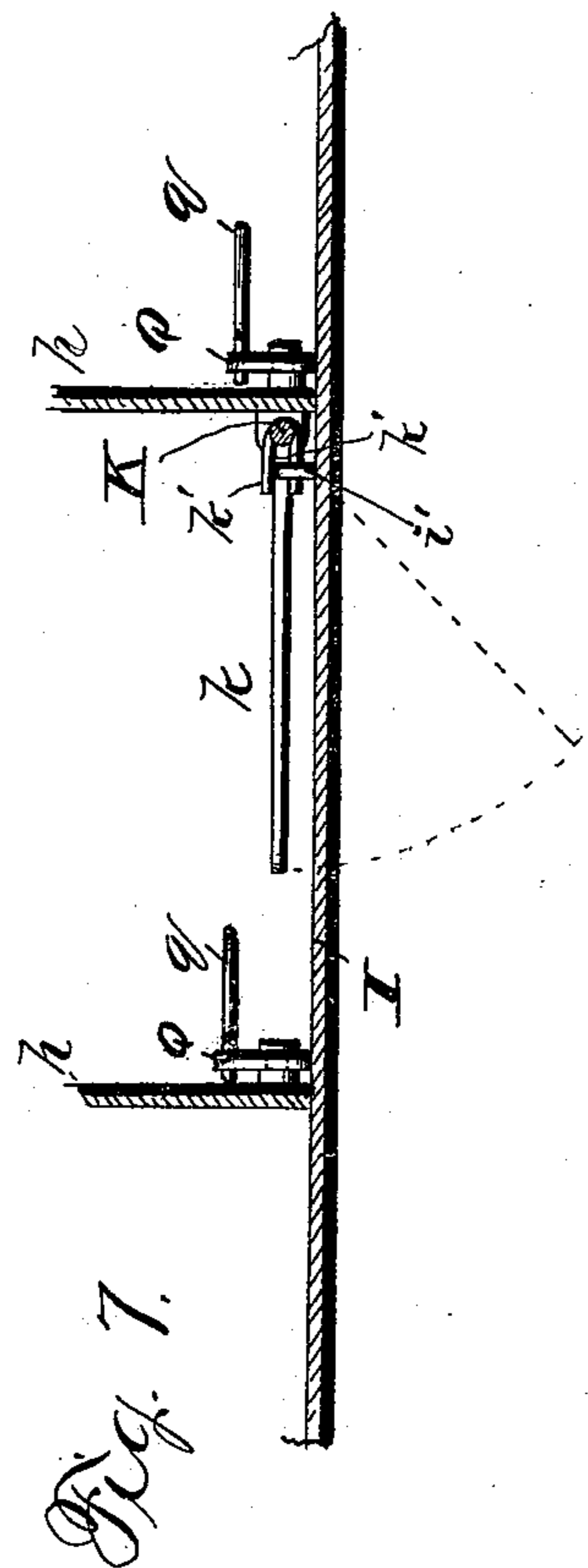
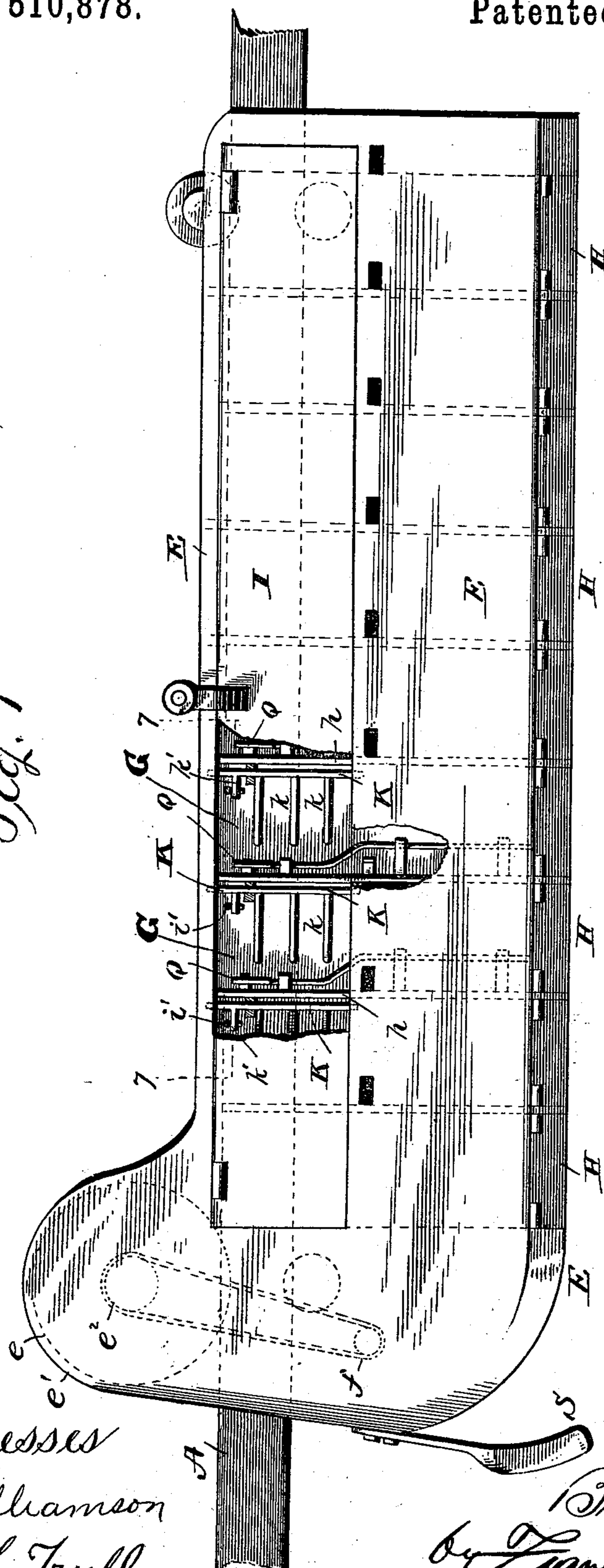
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B. F. BARNES.  
ELEVATED RAILWAY SYSTEM.

No. 510,878.

Patented Dec. 19, 1893

Fig. 1



Witnesses  
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C. S. Trull

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(No Model.)

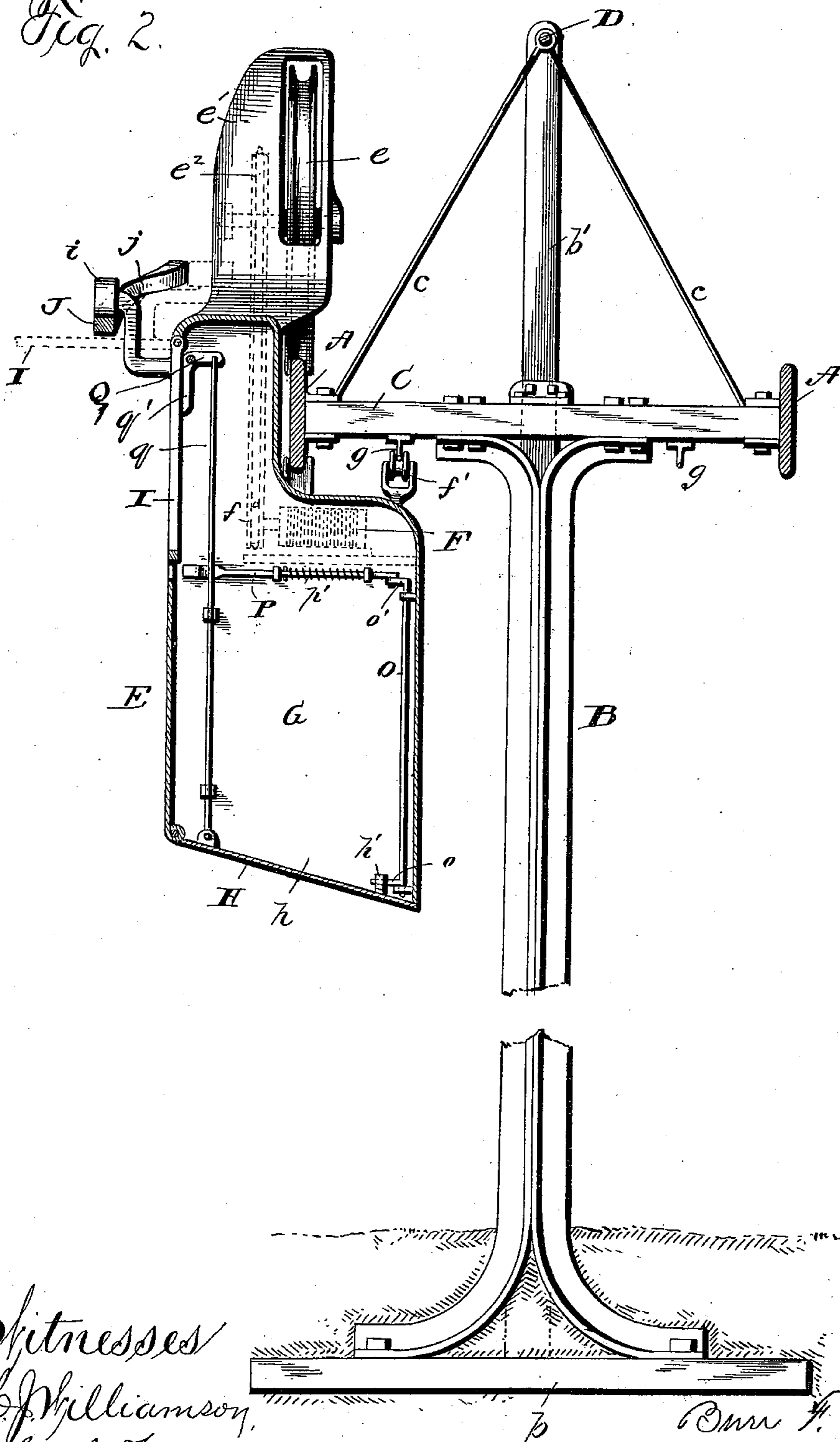
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Fig. 2.



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(No Model.)

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Fig. 3.

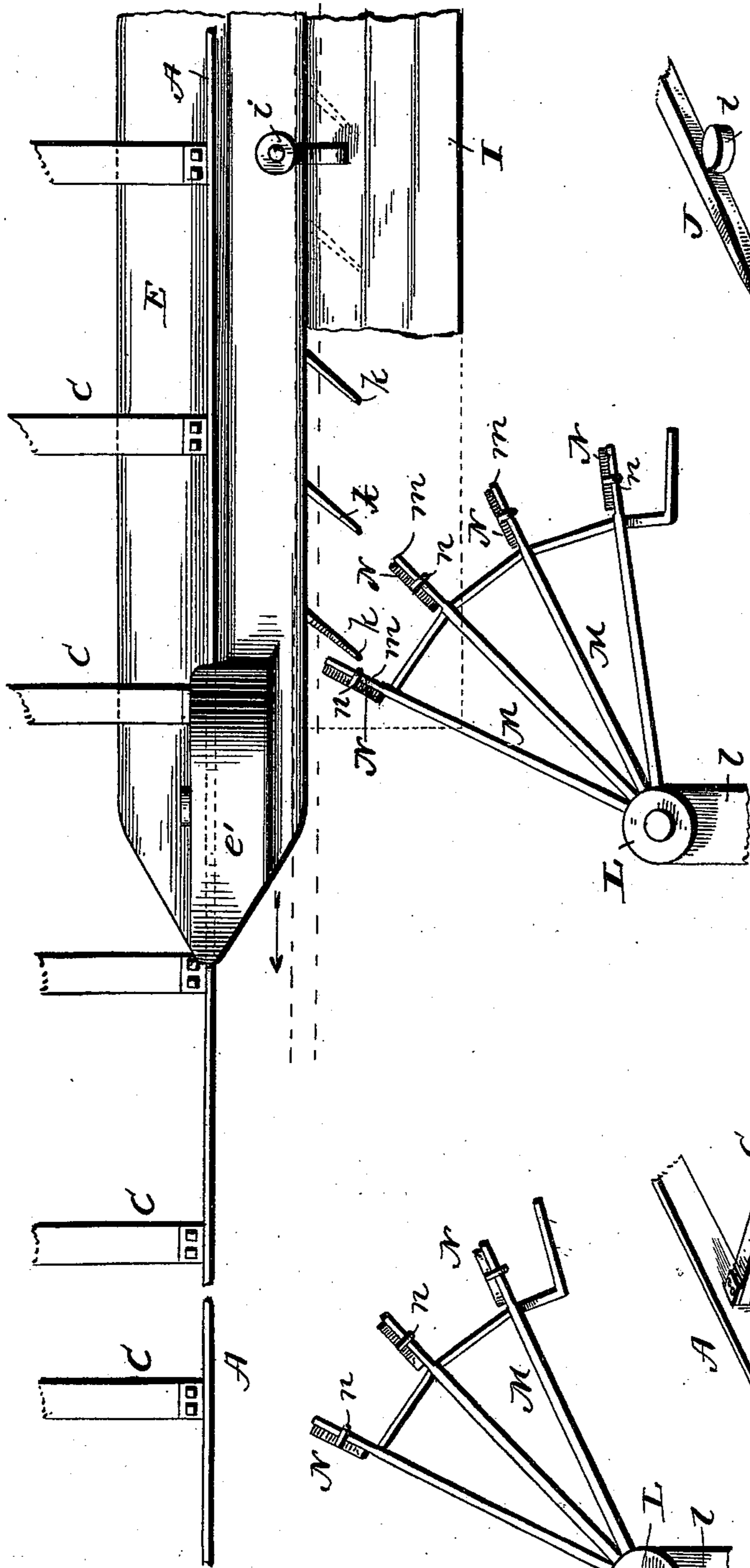
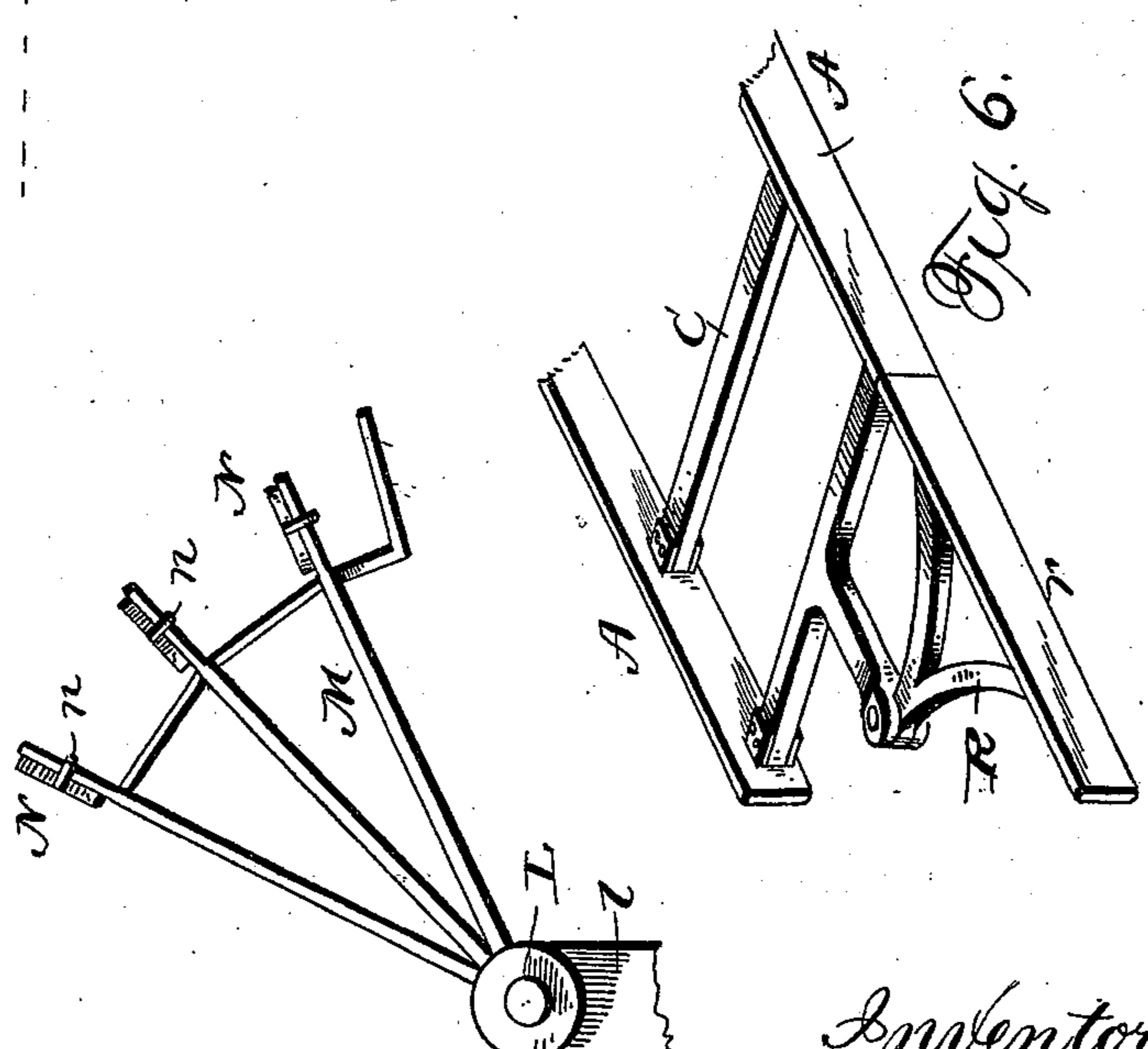


Fig. 5.

Fig. 6.



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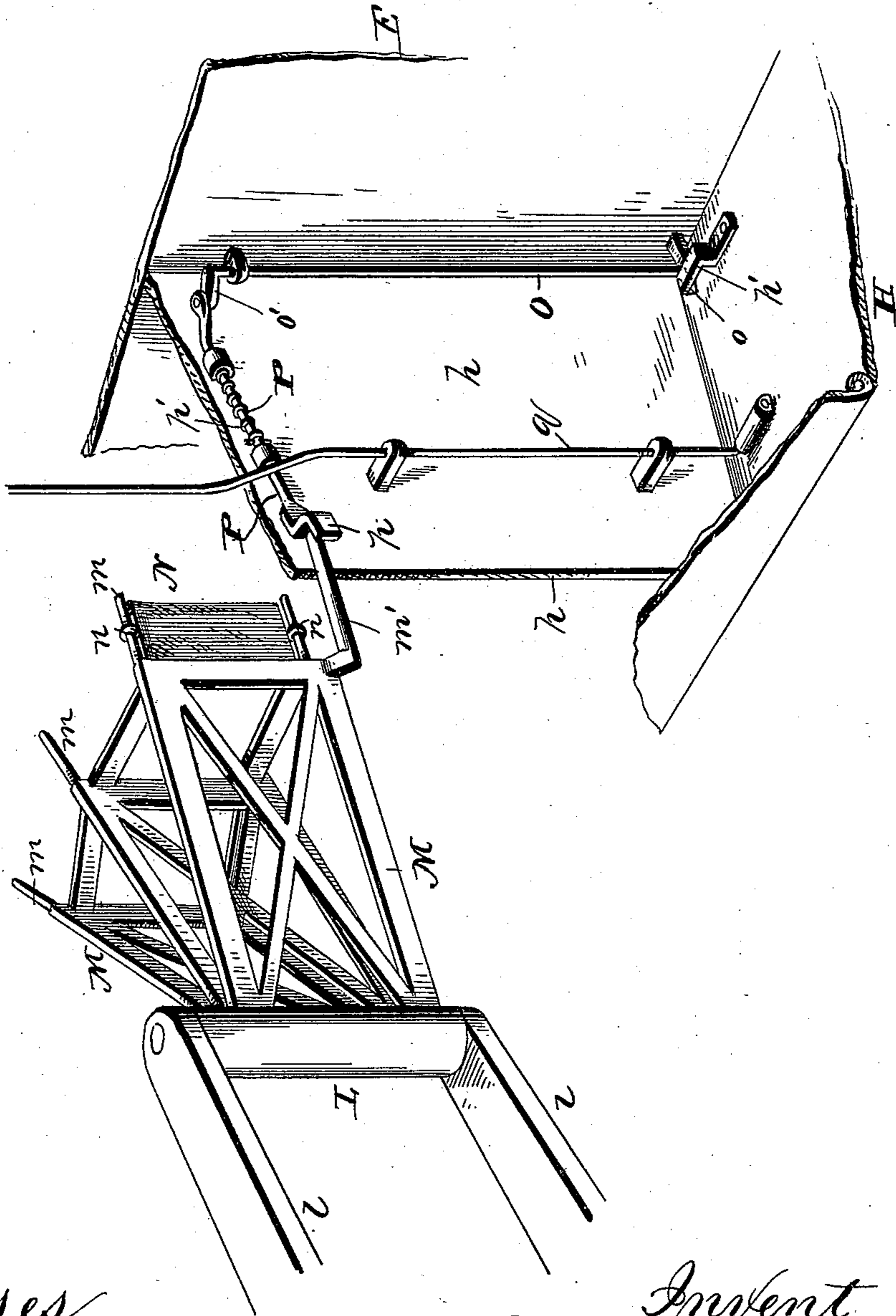
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Fig. 4.



Witnesses  
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# UNITED STATES PATENT OFFICE.

BURR F. BARNES, OF CIRCLEVILLE, OHIO.

## ELEVATED-RAILWAY SYSTEM.

SPECIFICATION forming part of Letters Patent No. 510,878, dated December 19, 1893.

Application filed April 11, 1893. Serial No. 469,919. (No model.)

*To all whom it may concern:*

Be it known that I, BURR F. BARNES, a citizen of the United States, residing at Circleville, in the county of Pickaway and State of Ohio, have invented certain new and useful Improvements in Elevated-Railway Systems; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to overhead systems of railway, and more especially designed for the rapid transportation of mail, express packages, &c., although, not limited to these, as by proper adaptation it can be employed for carrying persons.

In connection with the special purpose indicated it has been my object to provide an efficient apparatus that will automatically operate to collect and deliver at certain points, the objects to be transported.

To the ends indicated my invention consists in the mechanism and in the construction and combination of parts thereof, as more fully hereinafter specified.

In the accompanying drawings: Figure 1 is a side view of the car I employ for carrying mail, a portion of the side being broken away; Fig. 2 a vertical cross section of the same, and the rail supporting devices; Fig. 3 a plan view, showing a portion of the car and the devices at two stations to illustrate the manner of collecting and delivering mail sacks; Fig. 4, a perspective view of a portion of the car, and the mechanism at a station, the parts being shown ready to discharge or deliver mail; Fig. 5 a detail view of the door opening track; Fig. 6 a detail view of a turn-table device, that may be used to transfer the cars from one track to the other; Fig. 7 a detail horizontal section on line 7—7 of Fig. 1.

In carrying my invention into practice, I employ two, preferably parallel lines of rails A, A, one of which is designed for cars moving in one direction and the other in the opposite direction. Said rails are supported above the ground upon posts B placed at intervals apart, consisting of angle iron bars

bolted or riveted together, and curved or spread apart at their lower ends where, being attached to or mounted on a timber *b* or rock, they are embedded or sunk into the earth, so that the portion above the latter will occupy but little space, and thus not interfere with the use of the ground for other purposes.

The rails are connected together by numerous cross ties C extending between their inner faces, and braced and supported by rods or wire ropes *c*, that run from a cable D that extends from vertical extensions *b* of the posts B.

The rails A can be all metal, or wood and metal combined.

The car I employ consists of a long hollow body E preferably pointed at its front end and having flanged or grooved wheels to engage the rails on both its upper and lower edge and being so hung as to have its center of gravity well below the rail. The driving wheel *e* is made larger than the others and is located at the front end in a housing or hood like extension *e'*. The shaft of said wheel carries a sprocket wheel *e''* that is connected by a sprocket chain with a sprocket-wheel *f* driven by an electric motor F, placed in the front of the car, and located below the level of the rail A. Electricity to run the motor is preferably taken from a wire conductor *g* supported from the cross ties C, by a trolley or current collector *f'* carried on the upper side of the car.

The car is designed to be sent out from one terminus of the line, and to travel unattended continuously to the other terminus, suitable means being provided at each point in the form of switches to cut a portion of the conductor in and out of circuit to start and stop the car. Power to produce the necessary current to drive the car can be readily obtained by utilizing water falls, &c., occurring in the country through which the road passes.

The car is divided up into a number of compartments G, G by vertical partitions *h*, *h*, each of which is closed by a door H, at its bottom and all being closed at one side, by a door I extending lengthwise the entire distance taken by all of the compartments, and vertically nearly one half the height of the car. The opening closed by the side door I is the mail admitting opening, while the open-

ings closed by the bottom doors are delivery openings.

The door I is automatically opened to a horizontal position at each station by means of a track or bar J suitably supported at the station, which has a twisted portion *j* to engage a roller *i* carried at the end of an arm rigidly attached to the door, and swing its axis from a horizontal to a vertical position, as clearly shown in Figs. 2 and 5. The face of the track engaged by the roller gradually changes from a horizontal to a vertical plane, and the plane of the whole track gradually rises.

Pivoted near the outer rear side of each compartment G, is a vertical shaft K carrying a series of fingers *k*, that are swung outward to the position shown in Fig. 3 when the door I is opened, by means of a lug *i'* on the door which engages two lugs *k'*, *k'* on the shaft and operates to turn the latter. When the door closes these devices operate to swing the fingers *k*, *k* within their respective compartments. When the fingers are in the position shown in Fig. 3 they are designed to catch mail sacks, placed in position for them in the following way: At each station between the termini of the road, I mount in suitable supports *l*, *l* a vertical shaft I, which carries a number of radial arms, M. On the extremity of each arm M are several, preferably two, fingers *m*, *m* to which a mail bag N can be attached by means of rings *n*, *n* on the bag that are slipped over the fingers. These fingers and rings act to hold the bag in a vertical position where it can be engaged by the fingers *k* of the passing car and carried into the latter. The fingers *k* at the front of the car will engage the first bag, and operating much after the manner of a rock bar will turn the shaft L to bring the next bag in position to be caught by the second fingers *k*, and so on with succeeding bags and fingers *k*.

The shaft L is so located relative to the car that the bags are carried by the fingers *m* into the car, by its rotation. At each succeeding station from the starting point I propose to have one arm M less, as indicated in Fig. 3. The automatic delivery is effected by the following means: Each door H is held closed by a lock comprised of a lug *h'* on its inner side and a latch *o* carried at the lower end of a vertical rock shaft O. This rock shaft has at its upper end a radial arm *o'* that is connected with a sliding rod P, moving in guides secured to partition *h*. When pressed inward the rod P turns the shaft O to cause it to disengage its latch *o* from the lug *h'*, whereupon the door of its gravity and the weight of the mail sack, will immediately fall open. Said rod P is pressed inward by means of an arm or extension *m'* from preferably the last arm M of the bag holding de-

vice, which by the turning of the latter is passed through an opening in the car side into position to be engaged by the outer enlarged end of the rod P as the car moves along. Preferably the rod has a lip or flange *p* to engage the arm *m'* to insure its being swung forward as the car moves and thus compel it to carry the rod inward as described. The rod P is pressed normally outward by a coiled spring *p'*, and the latch *o* has its under face beveled, like a door latch to enable the lug to press it to one side and lock as the door H is closed.

As the unlocking of the door H takes place when the door I is open, I employ the closing of the latter to close automatically said door H, by means of a bell-crank lever Q pivoted to each partition *h* one of whose arms is connected by a rod *q* with the door H, and the other of whose arms *q'* is adapted to be struck and the lever thereby moved by the door I when closing. When the door H is opened the arm *q'* is projected outward into the path of the door I.

The two tracks may be connected by a circular extension at the ends of the line to enable cars to be passed from one track to the other, or, as shown in Fig. 6, a turn table may be used comprising a section of track *r* carried on an arm R pivoted midway the rails, and adapted to be turned so as to be in line with one or the other. The cars are simply run out on this section *r* and it then swings into alignment with the other rail.

A buffer S is placed at the front end of the car to avoid injurious shocks from collisions with other cars or other objects.

I claim—

1. In combination with the door, the shaft, carrying fingers and the connection between the shaft and door, to move the fingers out and in.

2. In combination with the delivery door and its latch mechanism the swinging arm adapted to engage and operate the latter as the car moves along.

3. In combination the car having the receiving and delivery doors, the means for opening both, and means operated by the former to close the latter.

4. In combination the car having the receiving and delivery doors, the means for opening both, the bell-crank lever adapted to be engaged and moved by the former, and the rod connecting said lever and the delivery door.

In testimony whereof I affix my signature in presence of two witnesses.

BURR F. BARNES.

Witnesses:

I. B. BARNES,  
J. G. SMITH.