

(No Model.)

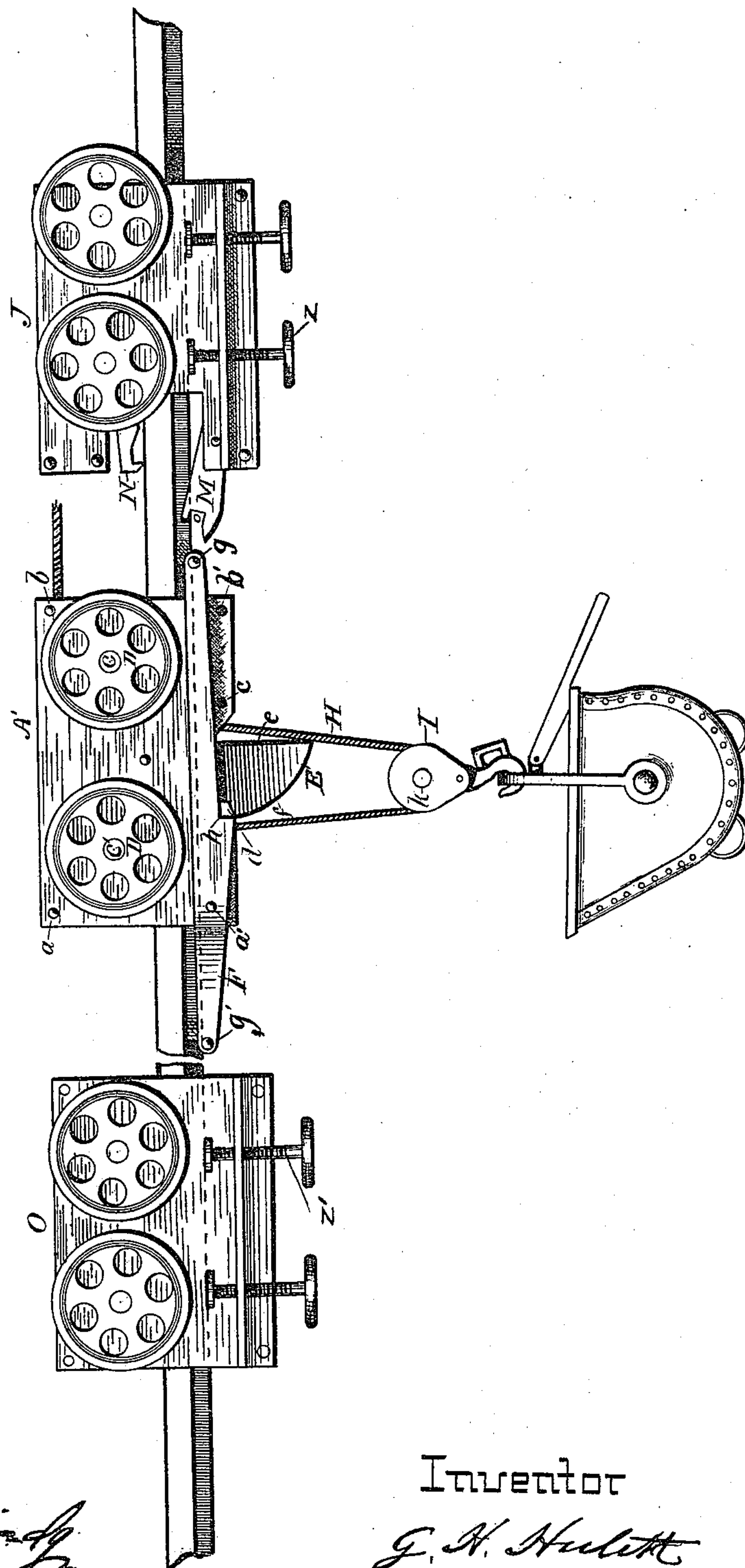
2 Sheets—Sheet 1.

G. H. HULETT.  
TRAMWAY CARRIAGE.

No. 440,809.

Patented Nov. 18, 1890.

Fig. 1



Witnesses  
B. M. Burridge  
L. O. Burridge

Inventor  
G. H. Hulett  
W. H. Burridge atty.

(No Model.)

2 Sheets—Sheet 2.

G. H. HULETT.  
TRAMWAY CARRIAGE.

No. 440,809.

Patented Nov. 18, 1890.

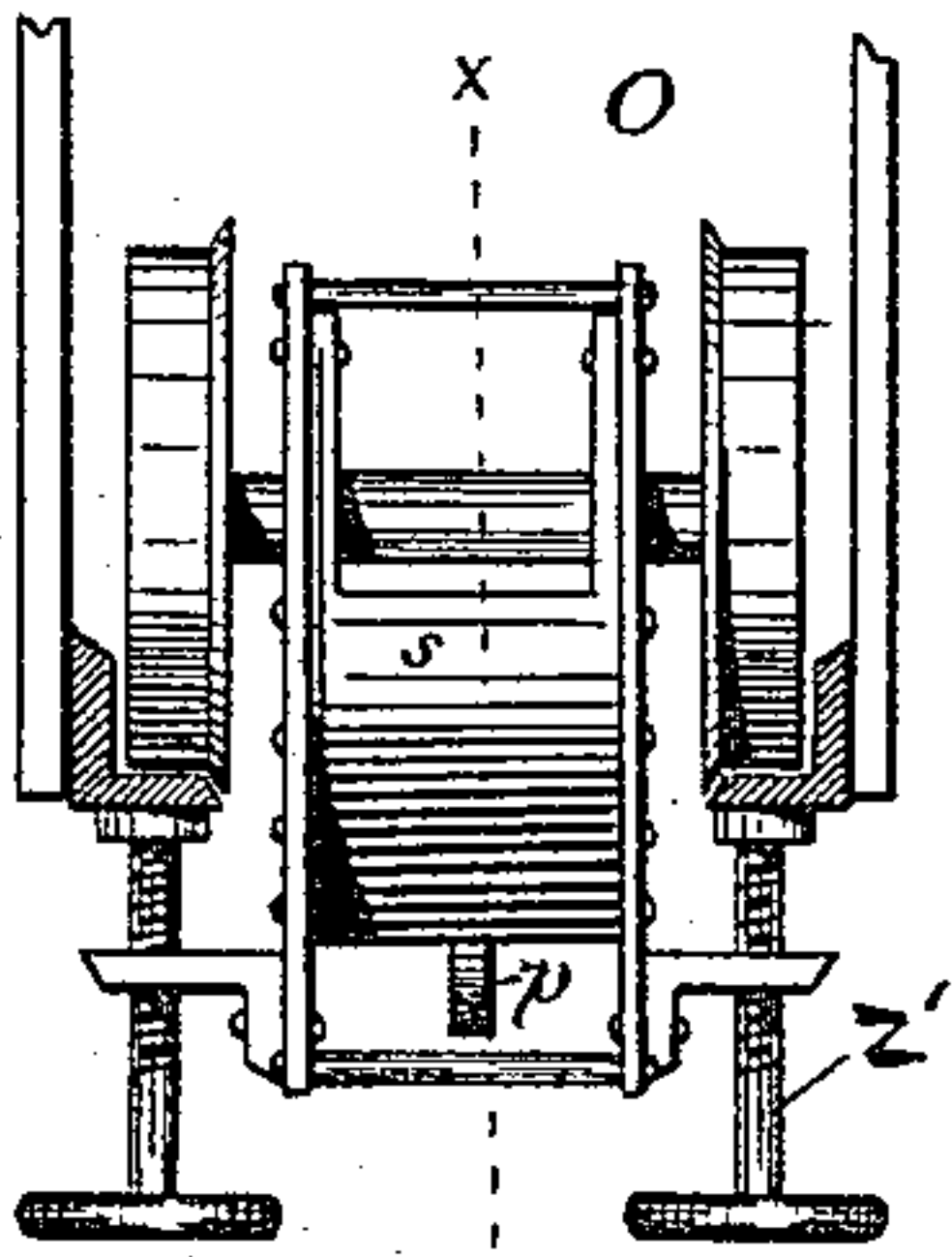


Fig. 2

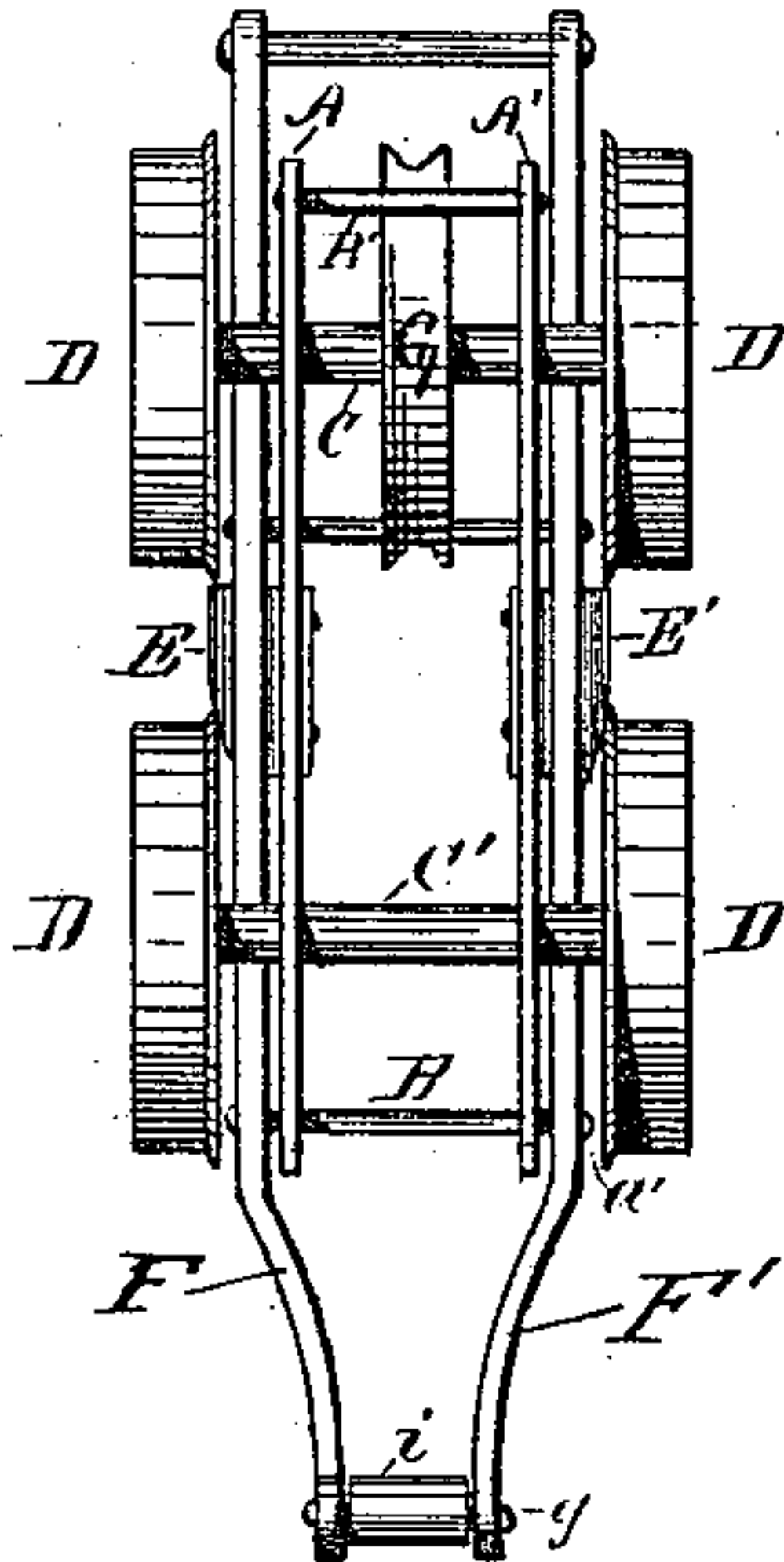


Fig. 3

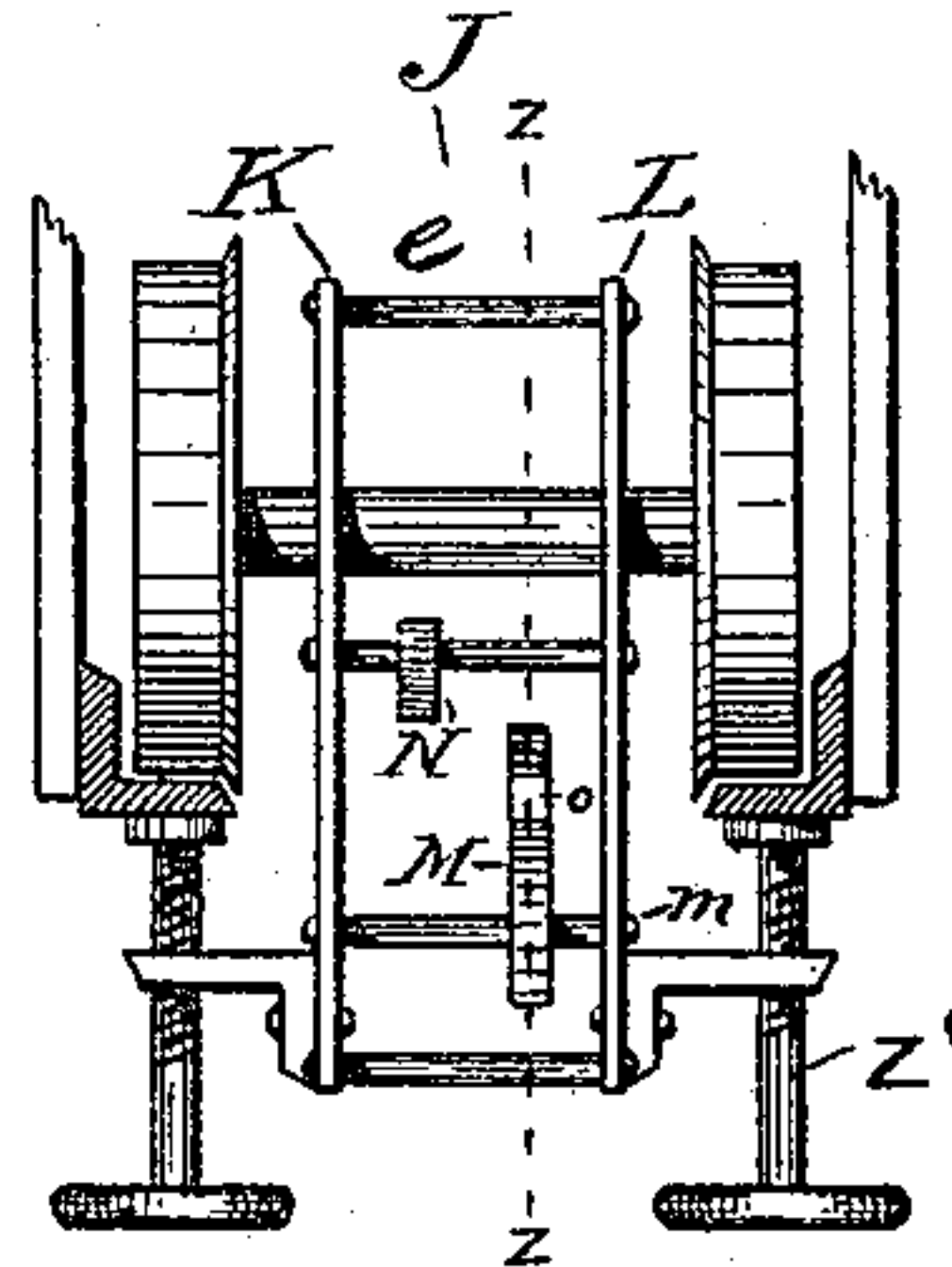


Fig. 4

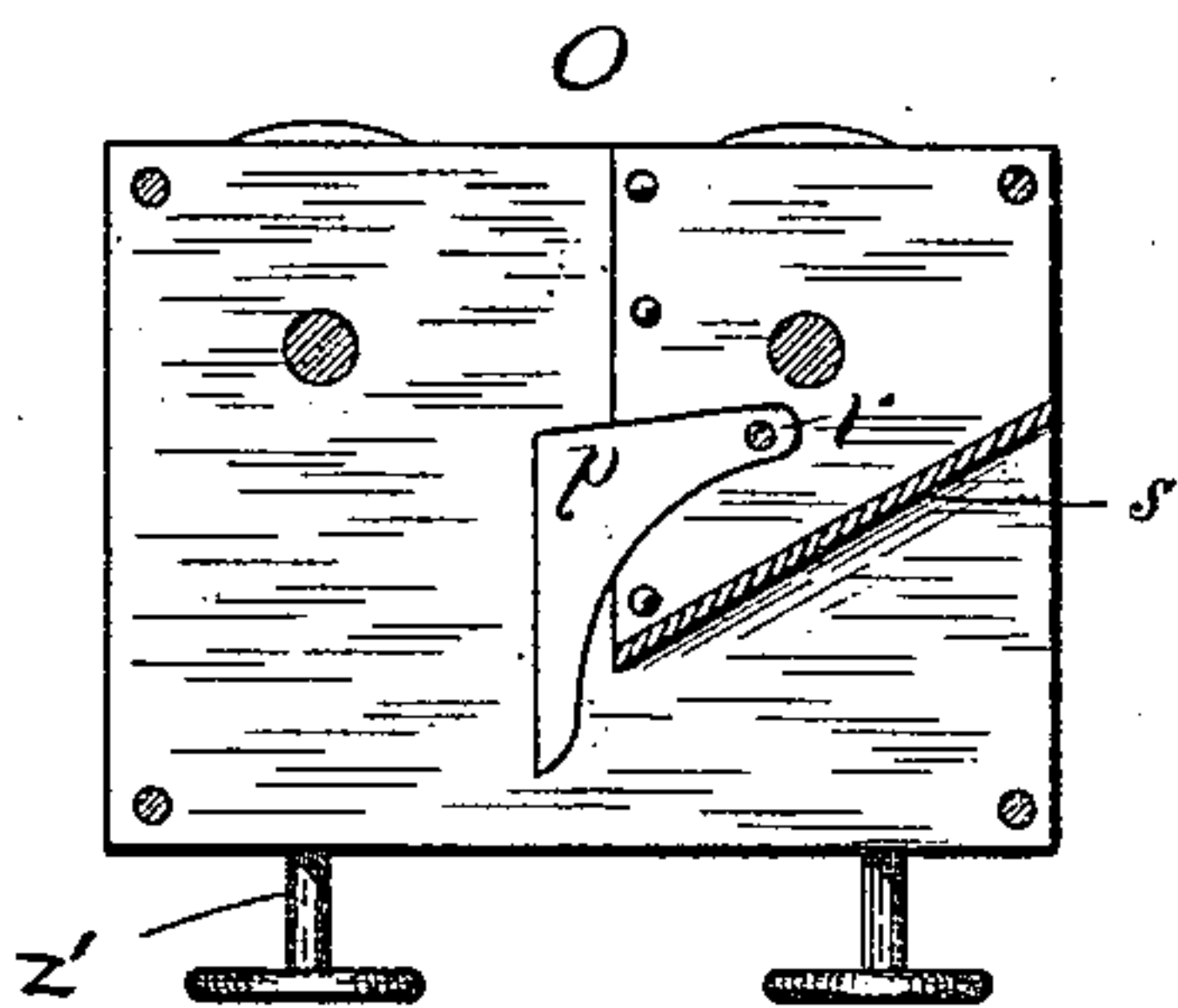


Fig. 5

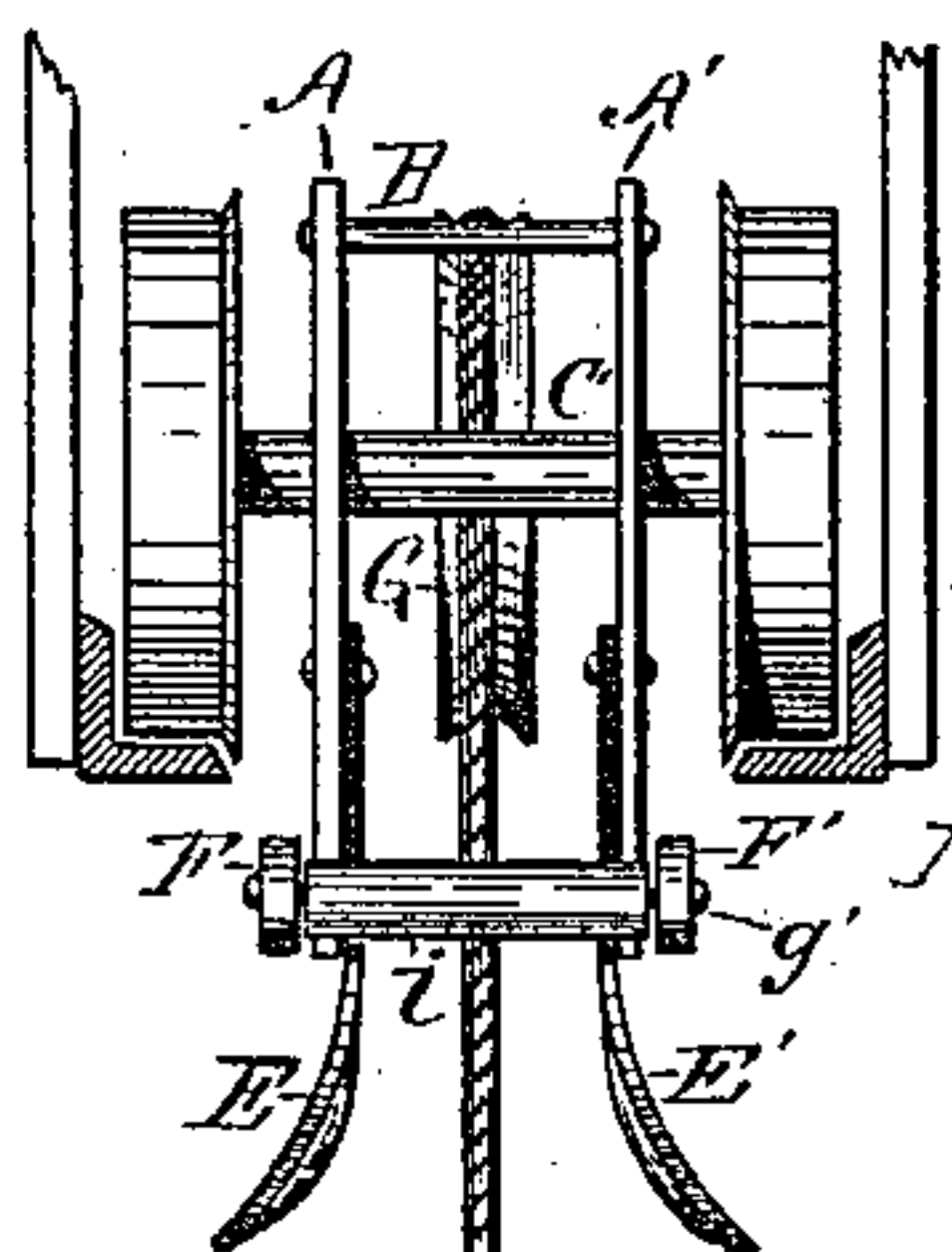


Fig. 6

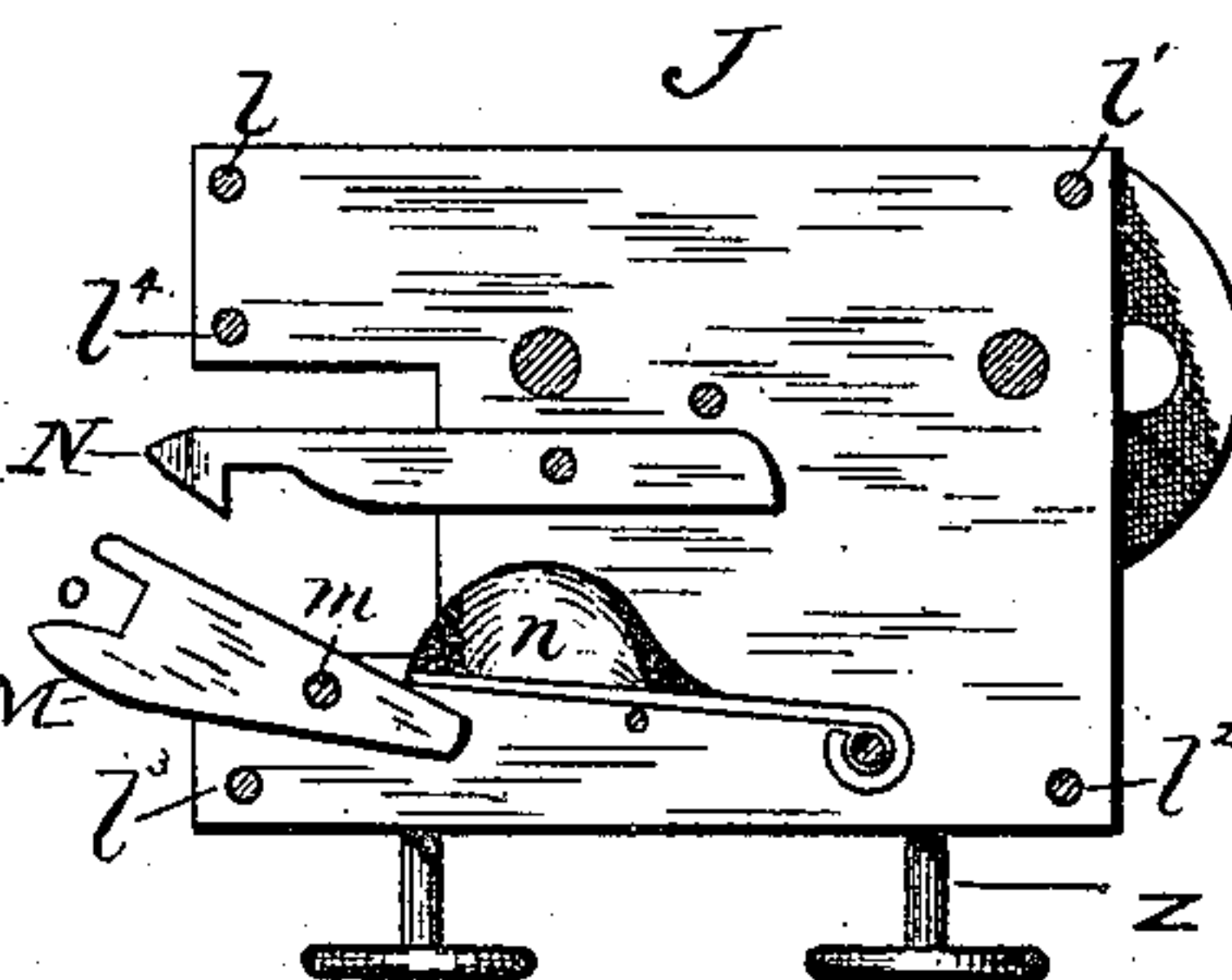


Fig. 7

Witnesses  
B. M. Burridge  
L. O. Burridge

Inventor  
G. H. Hulett  
W. H. Burridge  
Atty.



# UNITED STATES PATENT OFFICE.

GEORGE H. HULETT, OF CLEVELAND, OHIO.

## TRAMWAY-CARRIAGE.

SPECIFICATION forming part of Letters Patent No. 440,809, dated November 18, 1890.

Application filed March 14, 1890. Serial No. 343,949. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. HULETT, a resident of Cleveland, in the county of Cuyahoga, State of Ohio, a citizen of the United States, have invented certain new and useful Improvements in Tramway-Carriages; and I do hereby declare that the following is a full, clear, and complete description thereof.

The nature of my invention relates to a carriage or apparatus to be used on an overhead track or cable for the purpose of hoisting or raising coal, ore, earth, &c., from vessels, mines, and other places and transferring the same to wharfs, cars, and other localities or receptacles. It also relates to the automatic stops used in connection therewith and hereinafter described.

Previous to my invention carriages used for the purposes for which the one herein described is intended have been composed of many parts and complicated in their construction, necessitating great care in operating them, expense in manufacturing them, and trouble in keeping them in repair. An apparatus for these purposes should be as light and strong as possible with the fewest number of parts and the least liability of derangement under the rough usage to which such apparatus is subjected. My invention meets the foregoing requirements more fully than any heretofore invented, in that it is composed of fewer parts, simpler in construction, and still is as light and strong, as is hereinafter fully shown.

That the apparatus may be seen and fully understood by others, reference is had to the following specification and annexed drawings, in which—

Figure 1 is a view of the carriage and automatic stops on a slightly-inclined track, one side of the track being removed to show the working of the devices hereinafter described. Fig. 2 is an end view of the downgrade stop. Fig. 3 is a plan view of the carriage with the rope and hoisting-sheave detached. Fig. 4 is an end view of the upgrade stop. Fig. 5 is a detached section of the downgrade stop through line *x x*, Fig. 2. Fig. 6 is an end view of the carriage with hoisting-sheave attached. Fig. 7 is a detached section of the upgrade stop through line *z z*, Fig. 4.

Like letters of reference designate like

parts throughout the specification and drawings.

Before proceeding with a description of the mechanism of my invention I will mention that the shape is not arbitrary so long as the principle involved, the number of parts and the arrangement thereof are the same.

The carriage herein described is designed for an overhead rail track. A carriage can, however, be constructed for use on an overhead cable embodying the same principles, and therefore not departing from the nature of my invention.

The frame of the carriage is composed of the parts *A A'*, Figs. 3 and 6, (*A'* is also shown in Fig. 1,) secured together by a number of rods *B B'*, Figs. 3 and 6. The ends of these rods are shown in Fig. 1 at *a a' b b' c*. Passing through the frame are the axles *C C'*, Figs. 1, 3, and 6, on which are the wheels *D*. Attached to the inner sides of the parts *A A'* and depending therefrom are two pieces of sheet metal *E E'*, substantially of the shape or form shown in Figs. 1 and 6—that is, having the notch *d*, Fig. 1, at or nearly in a line with the base of the frame. One edge of the pieces *E E'* is perpendicular, as shown at *e*, Fig. 1, while the other edge *f* from the notch down to the lower terminal describes an arc. Said pieces *E E'* are of the shape above described and are made flaring from the frame down, as shown in Fig. 6, for the purpose hereinafter fully shown.

Pivoted to the outside of the frame at *a'* is a latch constructed as follows: Two arms *F* and *F'*, Figs. 1, 3, and 6, extending beyond the frame *A A'* at each end, said arms being connected by the rods *g* and *g'*, Figs. 1, 3, and 6, and having notches therein, as shown at *h*, Fig. 1, in close proximity to the notches *d* in the depending guides *E E'*. It will be seen that the notch *h* being below the pivot *a'* the greater the pressure of the arms *k* on the hoisting-sheave against the notch *h* the firmer it holds the sheave or load in position. On the rod *g*, passing through and connecting one end of the arms *F* and *F'*, is a bar or a roller *i*, Figs. 3 and 6. Fitted loosely on the axle *C*, over which the hoisting-rope *H*, Figs. 1 and 6, passes, and from thence around the sheave *I* and back to the carriage, where the end is



made fast to the axle C', or to a rod passing through the frame. The rod *c* extends through the pieces A A' to form a rest for the latch F F' as it is pivoted forward of its center of gravity.

Having described the parts of the carriage and the arrangement thereof, I will now proceed to describe the operation of same, which will explain the mechanism of the stops used in connection with said carriage.

Power being applied to the hoisting-rope H, which passes over the sheave G, around the sheave I, and is made fast to the carriage, as it will be seen, causes the sheave I, to which is attached the load, to rise. When the sheave I reaches the pendent pieces E E', the axle *k* of said sheave, which extends out on either side and forms the arms *k*, (said arms may be independent of the said axle and attached to the exterior of the sheave, as indicated by lines *k'*, for the same office shown in Fig. 6,) which come in contact with edges *f* of said pieces E E', which, being curved, form guides, the arms *k* follow until they come in contact with the latch F F'. They lift the latch, thereby permitting the arms *k* to drop into the notches, one of which is shown at *d*, Fig. 1. As soon as the arms *k* have entered the notches *d*, the latch F F', being pivoted forward of its center of gravity, drops back onto the rest *c*, the notches *h* and *d* by this action securely locking the sheave I, with its load, to the carriage. The carriage then proceeds on its journey up or down the track, as may be desired by the operator. Suppose, first, that it passes up the track. Secured to the track by set-screws *z*, at the point where it is desired to lower the load, is a stop J, Figs. 1, 4, and 7. Said stop is constructed as follows: The two side pieces K and L, Fig. 4, and the rods *l* *l'* *l''* *l'''* *l''''*, Fig. 7, substantially the same as the frame of the carriage. Passing through the frame is a rod *m*, Figs. 1, 4, and 7, said *m* being a pivot for the lever M, Figs. 1, 4, and 7, the center of gravity of which is forward of the pivot and which is counterbalanced by the weight *n*, Fig. 7. Above the lever M is pivoted a dog N, Figs. 1, 4, and 7. It will be seen that in the journey of the carriage up the track the rod *g* engages in the notch *o*, Figs. 1, 4, and 7, in the lever M. Said rod *g* being a part of the latch F F', and being raised by its engagement with the lever M, causes the latch F F' to rise, thereby permitting the sheave I to drop out of the notches *d*, Fig. 1. The rod *g* is carried up until it becomes engaged by the dog N, thereby retaining the carriage in position until the load has been lowered and dumped and the sheave again raised until the arms *k* are within the notches *d*. By the further upward movement of the sheave I the lever M is released from the rod *g* and drops back into position, as shown in Fig. 7. By reversing the movement of the rope H the sheave I and latch F F' descend until the arms *k* are engaged in the notches *d*, and the rod *g* is released from the

dog N and allows the carriage to travel back down the incline. The counter-balance *n* is used to retain the lever M in position, and also to allow it to be pressed downward and the rod *g* to pass out without lifting the latch F F'. The carriage passes down the incline until it comes in contact with the downgrade stop O, Figs. 1, 2, and 5, which is held to the track by the set-screw *z'*. The frame of said stop O is of similar construction as that of the stop J and of the carriage having the two sides connected by rods. Riveted or bolted to the interior of the frame of the stop O is a slide or incline *s*, Figs. 2 and 5. The roller *i* on the rod *g'* of the carriage, coming in contact with said incline *s*, forces the latch F F' downward, thereby raising the opposite ends of said latch and permitting the arms *k* to drop out of the notches *d* and the sheave I descends. The roller *i*, having traversed the extent of the incline *s*, comes in contact with a dog *p*, pivoted in the stop O at *r*, Figs. 2 and 5, said dog thereby being raised, allowing the roller to pass by, when the dog *p* drops down and holds the carriage until the hoisting-sheave, with its load, is returned and the arms *k* come in contact with the latch F F', raising it, thereby liberating the roller *i* and locking the sheave to the carriage, as hereinbefore described.

What I claim, and desire to secure by Letters Patent, is—

1. In a tramway-carriage adapted to travel on an overhead track, a latch composed of two arms extending beyond the ends of the frame and connected by means of rods or pins and pivoted to said frame and being notched at a point below the pivot, substantially in the manner and for the purpose set forth.

2. In combination, the carriage-frame, the depending guide E E', notched and curved, the hoisting-sheave having projections to engage the notched guides, and a lever pivoted to the frame and extending horizontally to engage at its central portion with the hoisting-sheave and at its ends on both sides of the pivot with suitable stops on the track, substantially as described.

3. The combination, with a tramway-carriage, of a hoist-block having a sheave and arms extending out on each side thereof arranged to operate conjointly with a latch, and guides having notches for engagement and disengagement of the block with the carriage by means of said arms, substantially as and in the manner specified.

4. In combination with the carriage, the upgrade stop consisting of a frame, as described, having a notched lever pivoted therein and counterbalanced by a weight, and a dog pivoted in said frame and operating conjointly with said lever and latch of the carriage, in the manner and for the purpose substantially as described.

5. In combination with the carriage, a downgrade stop, the frame of said stop having se-



cured to the interior thereof an inclined plane to raise one end of the latch of the carriage, and a dog to hold said carriage in position, substantially in the manner and for the purpose set forth.

5 6. In combination, the carriage-frame, the guides E E', depending on each side of the frame and notched to receive projections on the hoisting-sheave, and the two levers F F,

pivoted on each side of the frame, extending horizontally and connected together, substantially as described.

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

GEORGE H. HULETT.

Witnesses:

W. H. BURRIDGE,  
L. T. GRISWOLD.